



PRESERVATION OF NIAGARA FALLS
(H. R. 18024)

HEARINGS

BEFORE THE

COMMITTEE ON RIVERS AND HARBORS

OF THE

HOUSE OF REPRESENTATIVES

OF THE

UNITED STATES,

FIFTY-NINTH CONGRESS, FIRST SESSION,

CONSISTING OF

THEODORE E. BURTON, OHIO, *Chairman.*

BLACKBURN B. DOVENER, W. VA.

ROSWELL P. BISHOP, MICH.

ERNEST F. ACHESON, PA.

DE ALVA S. ALEXANDER, N. Y.

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WILLIAM LORIMER, ILL.

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JAMES H. CASSIDY, *Clerk.*

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PRESERVATION OF NIAGARA FALLS.

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES.

Washington, D. C., Thursday, April 12, 1906.

The committee met at 11 o'clock a. m., Hon. Theodore E. Burton in the chair.

STATEMENT OF ROBERT R. McCORMICK, ESQ., PRESIDENT SANITARY DISTRICT OF CHICAGO.

Mr. McCORMICK. Mr. Randolph and I came down here, Mr. Chairman, and Senator Cullom sent for us, explaining that this matter was coming up; that the President had sent a message regarding it, and he thought we ought to present our case.

The report of the Government engineers, which you have read, recommends that the Chicago Drainage Canal be limited to 10,000 cubic feet of water per second; that the Niagara Power Company be given 9,500 feet per second, and that another Niagara power company be given 8,600 feet per second. Now, 10,000 cubic feet per second is not enough to preserve the health of Chicago. The drainage canal, which has been built at a cost already of \$50,000,000, is the only means by which Chicago can be drained and the drinking water kept clean. It is planned to have an eventual flow of 14,000 cubic feet per second. The rock section is cut for that flow, and when the other sections have been completed that flow will be accommodated in the channels.

There are two or three reasons why 14,000 feet is the minimum. One is that we have to reverse the flow of the Chicago River and the Calumet River. They are considerable rivers, flowing into Lake Michigan. It takes about 6,000 cubic feet a second to reverse the Chicago River, and it will take 4,000 cubic feet a second to reverse the Calumet. That makes the 10,000 that the committee of engineers has spoken of. And then, to carry off other sewage from different parts of the city to connect up the sewerage system will take an additional 4,000, making 14,000 feet a second.

This problem is not purely one which concerns Chicago. If we had our own way about it, we would send a solid stream of sewage down to Joliet, down the Illinois River and down the Mississippi River, because that would be the cheapest thing for us to do. But that would be evidently and eminently unfair to the other people. So the statute under which we operate provides that there must be a flow of 20,000 cubic feet a second for every 100,000 inhabitants of Chicago. That makes a fairly clear stream of water.

You know that the State of Missouri sued out a writ for an injunction in the Supreme Court, and the court dismissed the injunction because it held that Missouri had shown no damage, but stated that if in the future Missouri could show that the flow of the drainage canal did do damage, they might then grant an injunction and close up the canal forever.

If Chicago continues to grow, as it is bound to do, and the flow of clean water is limited, the time will be reached when the drainage canal will be just a filthy stream. It will be a detriment to the whole Illinois Valley, and will be a cause for injunction in Missouri.

We feel this way about it, Mr. Chairman: That we do not want to prevent the preservation of Niagara Falls. The Chicago people travel a good deal, and I think a large percentage of them enjoy the Falls, and we would not for a minute consider building a power plant at Chicago for the purpose of taking water from the Falls. But we do think that the health of Chicago and the Illinois Valley and the water-way scheme which Congressman Madden is pushing here in Congress could come before the mere esthetic feature of Niagara scenery, and, at all events, that it should come before the business advantages of the two power plants at Niagara. You see, the engineers have classed all the enterprises alike. They say that the Chicago Drainage Canal should have 10,000 feet and the Niagara Power Company 9,500. Now, I submit that it is more just to give us 14,000 feet, because the very existence of Chicago, the very existence of the Illinois Valley, depend upon having as much as they need, and if you are going to limit the flow of water at all, take it away from those two electric-power companies, which are organized solely for private profit.

That is all I have to say, Mr. Chairman. If you want the figures gone into in detail I shall be glad to answer any questions, and those that I can not answer Mr. Randolph will.

The CHAIRMAN. Suppose that the limit of 14,000 cubic feet per second should be reached under your present plan, will not a still greater quantity be required in the future?

Mr. McCORMICK. Fourteen thousand cubic feet is estimated to accommodate a population of 4,200,000, which is considerably more than Chicago has now, and it will take some time to reach that figure.

The CHAIRMAN. Nevertheless, that quantity, as you estimate, would be required to take charge of the sewage which at present is created and must be carried off—that is, you would need the whole 14,000 cubic feet now, you think?

Mr. McCORMICK. I would not say so now. I dare say Mr. Randolph will say so. I know that, looking at it from the financial end, which is my end of the business, we do not want to take any more water than we have to, because it is so very expensive.

The CHAIRMAN. You ask for 8,000 feet for the Chicago River, 4,000 for the Calumet, and 2,000 for the Thirty-ninth street sewer?

Mr. McCORMICK. Yes, sir; that is it.

The CHAIRMAN. Making 14,000 cubic feet altogether. You say the statute requires water to be diverted from Lake Michigan to the extent of what?

Mr. McCORMICK. Twenty thousand cubic feet a minute for every 100,000 of population.

The CHAIRMAN. On that basis you would not require in order to meet the demand of the statute as much as 10,000 cubic feet a second. Let me see, what is your population now?

Mr. McCORMICK. Of the sanitary districts, about 2,000,000, I think.

The CHAIRMAN. That would require, then, about 6,700 cubic feet per second?

Mr. McCORMICK. There is another thing that comes into that, Mr. Chairman—the question of reversing the flow of these rivers.

The CHAIRMAN. It requires water in addition to that?

Mr. McCORMICK. You have to have a big enough flow to be sure that those rivers are running the other way.

The CHAIRMAN. I believe that is all, Mr. McCormick. We are glad to have heard you.

Mr. McCORMICK. Thank you.

**STATEMENT OF ISHAM RANDOLPH, ESQ., CHIEF ENGINEER,
SANITARY DISTRICT OF CHICAGO.**

Mr. RANDOLPH. Mr. Chairman and gentlemen, is it your pleasure to have me answer questions or shall I make a statement?

The CHAIRMAN. We shall be glad to have you make your statement first.

Mr. RANDOLPH. I think that you, Mr. Chairman, and quite a number of the gentlemen here are very familiar with the Chicago sanitary district project. You know that the water supply of Chicago is taken from Lake Michigan; it is its sole source of water supply. For very many years the discharge of its sewage was into its reservoir, which is Lake Michigan. This created a condition of things which became unbearable. It became a nuisance in the city to the health and to the comfort of the population. This condition reached such a stage that as far back as 1885 a commission was appointed by the then mayor, Carter H. Harrison (first), to advise as to what should be done to relieve Chicago of this condition. That commission examined into the possibilities, and reported upon three alternatives.

The first project was to build an intercepting sewer which would take all the sewage out of Chicago and convey it to a point near the southern end of Lake Michigan and there discharge it, by pumping, into the lake. At the same time that this was being done the intakes for water supply were all to be removed far to the north of the city, so as to divorce the source of pollution and the source of supply as far as possible.

As a variant of this proposition it was proposed to pump the sewage onto waste lands and to create a great sewage farm there. It was found that the cost of this project would be about \$75,000,000, with an annual charge for maintenance of \$2,000,000.

The third and last alternative was to reverse the flow of the Chicago River and to discharge that river into the Desplaines and Illinois valleys.

This was the alternative which was adopted. In 1889 a bill was passed through the legislature of Illinois providing for the formation of sanitary districts which should take their water from Lake Michigan. This was general legislation, although special in its purpose; for it was well known that Chicago would be the only city that could avail of it. Under this law the sanitary district has proceeded to dig a channel across the divide between the watershed of Lake Michigan and that of the Illinois Valley. That channel has now been completed for some years. Water was turned into it on the 17th day of January, 1900. This channel is fed through the Chicago River. This river

formerly flowed into Lake Michigan. In fact, it was more a bayou than a river, for at times, when the wind was on shore, the water flowed up stream, and it only had a serious flow of its own toward the lake in times of flood. At such times the accumulated sewage of the river was swept out into the lake, and into the intakes which supplied water to the city.

The capacity of the Chicago River for flow was 150,000 cubic feet of water per minute. We have been engaged for some years in deepening and widening that river. We are widening it to 200 feet; we are deepening it to 26 feet. This gives us a volume of flow through the river, at a limit of a mile and a quarter per hour (which is the velocity fixed by the Secretary of War), of 480,000 cubic feet of water per minute.

The Thirty-ninth street conduit, which runs from Lake Michigan to the south fork of the south branch of the Chicago River, will discharge into that south branch 120,000 cubic feet of water per minute. This is done by pumping.

The CHAIRMAN. Pumping from the lake, or pumping from the west end?

Mr. RANDOLPH. Pumping from the lake. We are erecting there six pumps. Two of these pumps are the largest ever attempted by man. Each one of the two pumps will throw 40,000 cubic feet of water per minute; that is, 300,000 gallons of water per minute for each pump.

These sources of supply will give us 600,000 cubic feet of water through our main drainage channel. The main channel from Chicago to Lockport, where the controlling works are located, is 28 miles in length. It has a minimum width in the rock of 160 feet. The minimum depth, with the lake at its lowest stage and the full flow of water, will be 22 feet. You must bear in mind that the greater the flow through such a channel the less the depth, because if it were simply a pool the depth would not be uniform, but would be greater as you reached the southern end, because the fall in the canal is something like 5 feet in that distance of 28 miles; but when the flow which it is proposed to put through it is actually in operation the surface of the water would be parallel to the bottom of the channel, which would give the minimum of 22 feet in depth.

What we have done has provided for the city of Chicago at the present time; but there is growing up to the south of us, within the city limits and in the adjacent territory, a vast manufacturing district, a district which is going to be very populous. There is every indication of that. This district is all discharging now into the Calumet River, which flows directly into Lake Michigan, and discharges within $3\frac{1}{4}$ miles of one of our principal sources of supply, the Hyde Park intake.

The CHAIRMAN. For drinking water?

Mr. RANDOLPH. Yes. It is necessary for the proper protection of Chicago that the Calumet River should be reversed, as well as the Chicago River. We have now secured legislation for that purpose. The work is located, and we are proceeding to buy the right-of-way, with the expectation of soon commencing work.

This last-mentioned project is not to-day a present necessity, but it will be a present necessity by the time we can complete it, because the growth of population in that region is so great. We will require for

that project 4,000 cubic feet of water per second, making the total of 14,000 cubic feet of water per second for which we ask.

Mr. JONES. Where will the Calumet River go when you reverse it?

Mr. RANDOLPH. It will flow through the Sag Valley, and enter our channel at what is known as Sag Bridge, on the Alton road—the rock channel.

Now, gentlemen, I have covered the matter as briefly as I can; and I will be glad to answer any questions that I can answer.

The CHAIRMAN. What is about the quantity, Mr. Randolph, consumed for the water supply of Chicago independent of the drainage canal?

Mr. RANDOLPH. To my best recollection, it is 385,000,000 gallons every twenty-four hours.

The CHAIRMAN. What would that be, reduced to cubic feet per second?

Mr. RANDOLPH. We would have to divide that by $7\frac{1}{2}$.

The CHAIRMAN. Every twenty-four hours, you say?

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. That would be about 52,000,000 cubic feet in twenty-four hours. This is a question of some considerable importance, because it shows the total amount taken from the lake at Chicago.

Mr. RANDOLPH (after making computations). Mr. Chairman, if I may answer any other questions at this time, and finish these computations and hand them in to you, I think it will save time.

The CHAIRMAN. A hasty computation seems to show that it would be approximately 600 cubic feet per second. It does not seem as though that were large enough.

Mr. RANDOLPH. Yes; I think that is quite large enough.

The CHAIRMAN. It is—600 cubic feet per second?

Mr. RANDOLPH. Yes.

The CHAIRMAN. That would be less than a twentieth of the amount which you ask for your drainage canal?

Mr. RANDOLPH. Yes, sir.

Mr. BEDE. Does the flow of the canal above the amount required to reverse the streams of the Chicago and Calumet rivers have anything to do with the health of the people below, say at St. Louis, or is there plenty of water to dissolve all this refuse?

Mr. RANDOLPH. That is a question, you know, which was gone into at very great length in our recent suit with St. Louis. I did not hear all of that testimony, but I was present at the opening of that case, when their star witness, Doctor Ravault, was on the stand. I never saw a man more deeply versed in the subject than Doctor Ravault was. He testified day after day as if he was reading out of a book, but with nothing before him. On the third or fourth day the examination in chief was concluded, and he was turned over for cross-examination; and I will have to epitomize, of course, but they broke him down in the shortest possible time. The examination was something like this:

Doctor Ravault, what is the greatest distance that typhoid germs are known to have traveled in flowing water?

He said:

Sixteen miles is the greatest authenticated distance, with 50 miles, the case of Detroit, in doubt.

Doctor Ravault, did you find in the waters of the Illinois and the Desplaines River any germs which are pathogenic to the human species?

I did not.

Doctor Ravault, did you find in the waters of the Desplaines and Illinois Rivers any germs which you did not find in the waters of the Mississippi above the mouth of the Illinois and in the Missouri river?

I did not.

So that, so far as he was concerned, he was discredited right there.

Mr. BEDE. I should say to the chairman that I have studied the Chicago situation a little, and I am very much impressed with the fact that the health of the people of Chicago and the people below there is of a great deal more importance to the nation than the poetry and the commerce of Niagara Falls.

The CHAIRMAN. The mind of the court is made up, then. [Laughter.]

Mr. HUMPHREYS. What was the discharge of the Chicago River into Lake Michigan originally?

Mr. RANDOLPH. That was a question of rainfall entirely.

Mr. HUMPHREYS. About what would you say the average discharge was?

Mr. RANDOLPH. There were times there when there was practically no discharge but the sewage discharge for days and days together. The influent streams into the Chicago River were practically dry. Then, at other times, when there were floods in the river, there would be as much as five hundred to six hundred thousand cubic feet of water flowing out of the two rivers, the north and south branches.

Mr. HUMPHREYS. A second, or a minute?

Mr. RANDOLPH. That is a minute.

The CHAIRMAN. Five hundred to six hundred thousand cubic feet per minute?

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. So that in a flood stage there would be 10,000 cubic feet per second?

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. All our computations, you know, are made on the basis of so much per second.

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. Ten thousand cubic feet per second—that would be a flood stage?

Mr. RANDOLPH. A flood stage; yes; an extraordinary flood stage; such a flood as we had there which flooded the whole lumber district and drowned out that region.

The CHAIRMAN. Could you state the average outflow from the Chicago River to Lake Michigan? Take it for a year.

Mr. RANDOLPH. Prior to the opening of the canal?

The CHAIRMAN. Yes.

Mr. RANDOLPH. No, sir; it would be a pure guess.

The CHAIRMAN. How about the Calumet River?

Mr. RANDOLPH. The Calumet River is very similar to the Chicago River in that respect. I have as frequently seen the current running upstream in the Calumet as I have seen it running down.

Mr. HUMPHREYS. The two together would not average 5,000 cubic feet per second, you think?

Mr. RANDOLPH. I do not believe they would; no, sir.

Mr. DAVIDSON. The Calumet River is quite a river clear up to Hammond, is it not?

Mr. RANDOLPH. Yes, sir.

Mr. DAVIDSON. And it flows there continuously the year round, does it not?

Mr. RANDOLPH. It flows there continuously, but with very, very small volume; such small volume that with a wind on shore the current is upstream.

Mr. ALEXANDER. Does the Calumet take its rise up in the swamps of northwestern Indiana?

Mr. RANDOLPH. Yes, sir.

Mr. ALEXANDER. East of Hammond?

Mr. RANDOLPH. Yes, sir. The Calumet has two branches—the Grand Calumet and the Little Calumet. The Little Calumet is the longest of the two and drains the largest area. The floods from the Little Calumet, measured at Riverdale, have reached in the neighborhood of 750,000 cubic feet of water a minute.

Mr. ALEXANDER. Do you propose taking the Calumet into the Desplaines? Probably that question was answered before I came in.

Mr. RANDOLPH. It is to be taken down through the Sag Valley and discharged into our channel at Sag Bridge. I have telegraphed, gentlemen, for a number of copies of the concise reports, which have maps in them showing these things that I am speaking of. They will probably be here to-morrow morning, on your desks, so that you can see them.

The CHAIRMAN. One other question, Mr. Randolph: What is the quantity of water diverted from Lake Michigan through the Chicago River at present?

Mr. RANDOLPH. At the present time we are limited by the Secretary of War on account of our not having completed that improvement. That improvement is about 75 per cent completed, but there are congested points in the river which would create too great a current for navigation if we took our full flow through, so that we are taking now about 425,000 cubic feet of water per minute.

The CHAIRMAN. That is just a trifle over 7,000 per second?

Mr. RANDOLPH. Yes, sir.

Mr. ALEXANDER. What is your limit when completed?

Mr. RANDOLPH. Our original proposition, when we considered only the Chicago River, was for 10,000 cubic feet of water per second. But when it became evident that we must reverse the Calumet River, it was necessary to ask for 4,000 cubic feet per second to reverse that river.

Mr. ALEXANDER. I mean your limit on the Chicago River when it is completed.

Mr. RANDOLPH. Our limit through the Chicago River proper is 480,000 cubic feet per minute. Then we take through the Thirty-ninth street conduit 120,000 cubic feet per minute, giving us, at the entrance of our channel, 600,000 cubic feet per minute.

The CHAIRMAN. Or 10,000 cubic feet per second?

Mr. RANDOLPH. Or 10,000 cubic feet per second; yes, sir.

The CHAIRMAN. Have you permits from the Secretary of War authorizing the taking of that much already?

Mr. RANDOLPH. I could hardly say that it is a permit from the Secretary of War. We began this flow without any authority from the General Government, as I understand it; but when we began it, an order was issued from the Secretary of War that we should not flow

in excess of 250,000 cubic feet of water per minute through that portion of the river which we had not improved.

The CHAIRMAN. What do you mean by "the portion of the river you had not improved?"

Mr. RANDOLPH. As I have just stated, there is about 25 per cent of the river which is not yet improved. We are working upon it, and hope to have it done in the course of a couple of years.

Mr. DAVIDSON. What do you mean by "improved?"

Mr. RANDOLPH. Widened to 200 feet, and deepened to 26 feet.

The CHAIRMAN. Just what is your permit from the Secretary of War? Describe it.

Mr. RANDOLPH. Our permit from the Secretary of War, or our limitation, rather, is 250,000 cubic feet of water per minute.

The CHAIRMAN. Or 4,166 cubic feet per second.

Mr. RANDOLPH. Yes, sir.

Mr. BURGESS. Mr. Randolph, assuming that a limitation should be put upon the total amount of water to be taken from the lake under your finished project, what is your judgment as to what the minimum of the total amount ought to be, and what are your reasons for it?

Mr. RANDOLPH. I think that the minimum should be what we have asked for—14,000 cubic feet a second.

Mr. BURGESS. Now, why? Can you give your reasons, briefly?

Mr. RANDOLPH. My reasons are these: Chicago, as you know, is a very rapidly growing city. When it was destroyed in 1871 I think it had a population approximating 500,000 people. The city has been rebuilt since then, and now has a population of about 2,000,000 souls. That is increasing very rapidly, year by year, and the southern district of which I spoke is filling up with people, becoming a vast manufacturing region; and the authorities on health who have passed upon this subject say that the proper dilution for every 100,000 inhabitants is 20,000 cubic feet of water per minute. Basing it upon that, it will not be very many years before we require all that we are asking for.

The CHAIRMAN. Would this amount of 14,000 cubic feet per second be required for some years to come?

Mr. RANDOLPH. No, sir.

The CHAIRMAN. How many years, probably?

Mr. RANDOLPH. Probably it will not be required for from six to eight years; but in the meantime we will have to build this channel which is to take care of the 4,000 cubic feet.

The CHAIRMAN. Which you do not wish to build unless you know that you can draw off this water?

Mr. RANDOLPH. No, sir.

The CHAIRMAN. And if you are to be allowed to do so you are going right ahead with it now?

Mr. RANDOLPH. We are preparing to do that work now; and we were startled when we saw this recommendation that we should be confined to 10,000 cubic feet of water per second, because we were going ahead on the assumption that we would have this other 4,000 cubic feet of water, and were preparing to make an investment of \$12,000,000 in this work.

The CHAIRMAN. What, in your judgment, Mr. Randolph, is the effect on the level of Lake Michigan of the drawing off of this water?

Mr. RANDOLPH. Mr. Chairman, that is what we might call an engineering guess. No one has yet been able to arrive at a satisfactory

determination of it. Observations of the Lakes for the last forty years show that Lake Michigan and Lake Huron reach their lowest stage of water in the winter season, January and February. They rise to their maximum height in the summer season, during June and July and August. The St. Louis suit forced us to open this canal at a time when we did not expect to open it; and it was a very, very fortunate circumstance for us. We were compelled to open it on the 17th day of January, 1900, when the lake was at its low stage. The lake rose steadily from that time to its maximum the following summer, and of course we are not credited with having raised the Lakes.

Mr. ALEXANDER. That would be the summer of 1901?

Mr. RANDOLPH. 1900. You see, it was in January, 1900.

Mr. ALEXANDER. Oh, yes; the following summer?

Mr. RANDOLPH. Yes. Another thing which has militated against any determination of its effect upon the Lakes is that the Lakes have been higher since 1900 than they had for a long period before, and this winter Lake Michigan has been very much higher than usual with us.

Mr. ALEXANDER. How much higher was it, Mr. Randolph, last summer than in the summer of 1900?

Mr. RANDOLPH. I am not sure of that, because I did not bring the figures with me; but I should say it was probably 6 inches higher than it was in the summer of 1900.

Mr. ALEXANDER. It was a foot and a half higher with us at Buffalo.

Mr. RANDOLPH. It was?

Mr. ALEXANDER. Yes, sir.

Mr. JONES. What is the variation between high and low water?

Mr. RANDOLPH. Between winter and summer?

Mr. JONES. Yes.

Mr. RANDOLPH. Taking the mean of the last forty years, as I remember it, it is ninety-two one-hundredths of a foot.

Mr. JONES. Ninety-two one-hundredths of a foot?

Mr. RANDOLPH. Yes, sir.

Mr. ALEXANDER. I spoke of the summer Mr. Randolph, not of the winter.

Mr. RANDOLPH. Yes, sir.

Mr. DAVIDSON. Is it generally understood that there is a current flowing from Lake Michigan through the straits into Lake Huron?

Mr. RANDOLPH. Yes, sir.

Mr. ALEXANDER. I wanted to ask that question next—first, as to the effect on the level of Lake Michigan. Have you answered that question fully? You say it is an engineering guess?

Mr. RANDOLPH. Yes, sir.

Mr. ALEXANDER. Complicated by the fact that of recent years the level of this great lake, as well as all the Lakes, has been higher than usual?

Mr. RANDOLPH. Yes.

Mr. ALEXANDER. Now, have you anything further to say on that point? Excuse me, Mr. Davidson; but I would rather run down that question in regard to Lake Michigan fully first.

Mr. DAVIDSON. Certainly.

Mr. RANDOLPH. That is something that I have never done any individual work upon. I have heard the guesses of several engineers. The maximum guess was that it was lowered 6 inches.

Mr. ALEXANDER. That the drainage canal lowered it 6 inches?

Mr. RANDOLPH. That it would eventually.

Mr. ALEXANDER. That is, you mean when you take the 14,000 cubic feet per second?

Mr. RANDOLPH. No, sir; 10,000 cubic feet per second was what they were figuring on then.

Mr. ALEXANDER. A diversion of 10,000 cubic feet per second would lower it 6 inches?

Mr. RANDOLPH. Yes, sir.

Mr. BURGESS. That was the maximum guess of the engineers?

Mr. RANDOLPH. Yes, sir.

Mr. BURGESS. Do you remember the minimum guess?

Mr. RANDOLPH. No, sir; I do not.

Mr. BISHOP. Is it not a fact that the average rainfall on the Great Lakes for the last four or five years has been greater than it was for the four or five years preceding?

Mr. RANDOLPH. I think it is. I know that during the time we were building the drainage canal it was an unusually dry period, a very dry period; and the wet season commenced after that.

The CHAIRMAN. Is that all you desire to say in regard to the question about the level of Lake Michigan, Mr. Randolph?

Mr. RANDOLPH. Yes, sir. I would simply have to express ignorance on that subject; I have done no personal work on it.

The CHAIRMAN. Mr. Davidson asks what you would say as to the effect of the drainage canal on the level of the other lakes. Connected with that is the question, To what extent is there an outflow from Lake Michigan through the Straits of Mackinac into Lake Huron and on down to the lower lakes?

Mr. RANDOLPH. I was looking up some matters on that subject yesterday, and I have some data here which I will refer to. I find that the water area of Lake Michigan is 22,400 square miles; the area of Lake Huron is 23,200 square miles; the discharge from Lake Superior is 75,000 cubic feet per second.

The CHAIRMAN. That estimate is a little higher than the usual estimate, is it not, which I believe is about 60,000? However, I do not know but that that may be regarded as correct—75,000, you say?

Mr. RANDOLPH. Yes, sir; with an increase for every foot of rise of 15,500 cubic feet per second. Now, the discharge into the St. Clair River is 206,400 cubic feet of water per second; so that there is an increase over the discharge of Lake Superior of 131,400 cubic feet per second, which must come from Lakes Huron and Michigan. Those two lakes are very nearly equal in area. Lake Huron has a greater area by 800 square miles, and it has a greater watershed by 6,600 square miles. The rainfall on Lake Michigan and over on its watershed is given as 36 inches per annum, and on the other watersheds 35 inches per annum; so that it would seem fair to say that 45 per cent of the water discharging from those two lakes comes from Lake Michigan.

The CHAIRMAN. Comes from Lake Michigan?

Mr. RANDOLPH. Yes, sir; that is, 45 per cent of this increase of 131,000 cubic feet. Taking those areas and the supposed outflow from Lake Michigan, I find that if there was no rainfall whatever, no evaporation, no outflow from any other source, and no inflow from any other source, drawing off 14,000 cubic feet of water per second, it would take one year and forty one-hundredths to lower the lake 1 foot. If you shut off all sources of supply and all other outlets

from the lake, the drawing off of this 14,000 cubic feet per second would take a year and forty one-hundredths to lower it 1 foot.

The CHAIRMAN. Figuring on that basis, the lowering of the waters of Lake Michigan to the extent of 6 inches would have what effect on the discharge into Lake Huron and the lower lakes?

Mr. RANDOLPH. Of course the lowering of Lake Michigan 6 inches would diminish the discharge into the lower lakes.

The CHAIRMAN. How much?

Mr. RANDOLPH. I do not know how much. I think it is given for each foot of depth in the report of the United States Engineers of the survey of the northwestern lakes, made on April 15, 1905. I think they give there the effect of each foot of lowering or raising.

The CHAIRMAN. That is given in the last report of the Chief of Engineers?

Mr. RANDOLPH. I think so.

The CHAIRMAN. What, in your judgment, is the fact, Mr. Randolph, as to this question: Can any engineer arrive at exact results in determining the question of the effect of that drainage canal in lowering the level of Lake Michigan and the effect on the Lakes below Lake Michigan?

Mr. RANDOLPH. No, sir; I do not believe any engineer can, and I think that is the consensus of opinion from all of our leading engineers. They have recommended, you know, that a careful series of observations extending over a long term of years be made to try to determine that thing; and I think those observations are being made by the Government now.

Mr. DAVIDSON. Would the drawing of the present amount of water through the drainage canal lessen the amount of flow of the current through the Straits?

Mr. RANDOLPH. I presume it does. If Lake Michigan is contributing, say, sixty-one or sixty-two thousand cubic feet per second in that direction, and you take off 14,000 in the other direction, I take it for granted that it does lessen the flow.

Mr. DAVIDSON. The amount that you take off by way of the drainage canal would, in fact, be taken out of the level of the lower lakes rather than out of the level of Lake Michigan, would it not? In other words, if you did not take it out, the amount you now take out would be added to and carried out in the current through the straits, would it not?

Mr. RANDOLPH. That is, your idea is that the 14,000 cubic feet that we take out is taken away from the flow that goes in the other direction?

Mr. DAVIDSON. Yes, sir.

Mr. RANDOLPH. I am not sure that that is a fact.

Mr. DAVIDSON. I am asking for information.

Mr. RANDOLPH. I am not sure that that is a fact. I am rather inclined to think that it is so much more taken from the lake.

Mr. DAVIDSON. So much more taken from the lake?

Mr. RANDOLPH. Yes, sir.

Mr. HUMPHREYS. That being true, it would not diminish the flow into the other lakes?

Mr. RANDOLPH. No, sir; only to the extent to which the surface of Lake Michigan and Lake Huron were lowered. If you lowered the surface of those lakes you would diminish the depth of the rivers which flow out of them, and consequently the volume of flow which

passes through that cross section. You diminish the cross section by diminishing the level of the lake.

Mr. DAVIDSON. The amount of flow through the straits from Lake Michigan would naturally be more as the level of Lake Huron was lowered, would it not, making more current?

Mr. RANDOLPH. As the level of Lake Huron was lowered?

Mr. DAVIDSON. As the level of Lake Huron was lowered. Does not Lake Huron act as a dam to Lake Michigan to some extent?

Mr. RANDOLPH. They are both at the same elevation. There is a difference of only five one-hundredths of a foot between the elevations of the two lakes, I think. They are practically at one level. The mean surface of Lake Michigan is given as 581.35 feet above mean tide at New York and the level of Lake Huron is given as 581.4 feet, so that there is a difference of only five one-hundredths of a foot between the levels of those two lakes. I am rather inclined to think that even that is an instrumental error and that they are probably the same.

Mr. DAVIDSON. Then, if they are practically the same, the drain is by reason of the fall at the St. Clair and Detroit rivers? Is not that a fact?

Mr. RANDOLPH. Yes, sir.

Mr. DAVIDSON. And all above that is practically a pool?

Mr. RANDOLPH. Yes, sir. There is a fall of some 8 feet (8.29 feet, I think it is) between Lake Huron and Lake Erie.

Mr. DAVIDSON. Yes. Now, that fall acts as a drain to the pool formed by Lakes Huron and Michigan?

Mr. RANDOLPH. Yes, sir.

Mr. DAVIDSON. As a matter of fact, then, the drawing of water through the drainage canal would affect the level of Lake Huron as well as the level of Lake Michigan?

Mr. RANDOLPH. Certainly; those two lakes being practically one pool, they would be affected by it.

Mr. BURGESS. Lake Huron would be lowered 6 inches, too?

Mr. RANDOLPH. Probably.

Mr. DAVIDSON. Then you account for the current through the Straits of Mackinac as being the result of the current through the St. Clair flats, drawing off in that direction, do you?

Mr. RANDOLPH. The St. Clair River forms a channel through which these waters flow.

Mr. DAVIDSON. Yes; and except for the flow out of that end of Lake Huron there would not be the current which you spoke of a few moments ago through Mackinac?

Mr. RANDOLPH. No, sir; no, sir. Mr. Burton, may I ask you one question before I forget it? Can you give me the sailing distance from Chicago to Buffalo? I was asked that question yesterday by the Senate committee, and I could not remember it.

The CHAIRMAN. Why, no; I do not know that I can. It is between 900 and 1,000 miles.

Mr. RANDOLPH. I stated to them that I thought it was between eight and nine hundred, but I was not sure.

Mr. ALEXANDER. It is about 1,000 miles from Buffalo to Duluth.

Mr. RANDOLPH. Yes.

The CHAIRMAN. That is, it is between 900 and 1,000.

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. The trouble is that those sailing distances are hardly

ever given twice in the same figures, and it is hard to carry them in mind on that account.

Mr. DAVIDSON. I do not like to take all the time, but I would like to ask Mr. Randolph two or three other questions.

The CHAIRMAN. Certainly.

Mr. DAVIDSON. What effect do the tunnels in the Chicago River now have on the flow of those rivers, as to the current and the capacity?

Mr. RANDOLPH. At the present time they are not affecting us seriously, because of the fact that we have not completed our widening and deepening at other places. They would affect us very seriously if that widening and deepening had been completed.

Mr. DAVIDSON. They would act as a dam?

Mr. RANDOLPH. Yes, sir.

Mr. DAVIDSON. If those obstructions were removed, is it practically a pool to the controlling works at Lockport?

Mr. RANDOLPH. There is a fall of about 5 feet and 2 or 3 inches from Lake Michigan.

Mr. DAVIDSON. And the current is produced only by reason of the flowing at Lockport?

Mr. RANDOLPH. Yes, sir.

Mr. DAVIDSON. What effect would it have on the amount of water necessary to put through the canal if that canal was open for navigation and expanded?

Mr. RANDOLPH. That would not affect us in any way. The water is flowing there anyway. This volume has to go out.

Mr. DAVIDSON. No additional supply would be needed on that account?

Mr. RANDOLPH. No, sir; no, sir. You know that all the bridges over our channel are movable structures. They have not been equipped with operating machinery, but they are built as movable structures, and the sanitary district law required us to open those bridges to navigation seven years after the water was turned into the channel, so that we would be required to equip those bridges next year.

Mr. RANDELL. Mr. Randolph, who was it that made the recommendation that you should be limited to 10,000 cubic feet per second? You stated that, but I did not gather who it was that made that recommendation.

The CHAIRMAN. It was this report of the International Waterways Commission that you have before you, Mr. Ransdell. Perhaps it was filed when you were away. You will find the figures given on page 12 of the report—the preservation of Niagara Falls.

Of course there is another question to be considered here in addition to Niagara Falls, and now that the subject is under consideration it is well to have hearings upon the matter. That is its effect upon navigation as regards further demands for the water of Lake Michigan. Are there to be any channels on the north side of the Chicago River? Are those in contemplation?

Mr. RANDOLPH. Those are in contemplation, but they do not at all affect the volume of water coming from the lake. There is a conduit on Lawrence avenue; there would be a canal built from the north branch to Evanston, the elevation of the lake being the same all along its shore. Those channels can only be supplied by pumping. We pump from the lake, and that flow meets the main Chicago River at

Kinsley street; they come together there, and the flow that comes from that pumping is—

The CHAIRMAN. Is utilized as part of the discharge through the drainage canal?

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. Now, about extending your sewerage system farther south in the Calumet River—there is a very great growth in that direction. Will any intercepting canals be necessary down there?

Mr. RANDOLPH. We believe that we are taking care of that whole region by this channel which we propose to put through the Sag Valley.

The CHAIRMAN. There is still another question that is outside of your jurisdiction: There is probable growth in Indiana, bordering on the lake. What provision will they make for their sewage?

Mr. RANDOLPH. I suppose that they will discharge it into the Calumet River, which runs through their plants. The unfortunate part of the whole business is that we are making an improvement which will benefit Indiana to a very large extent, and for which Indiana will not be required to contribute anything. We have to bear the burden of the whole improvement. It is a topographical condition which forces us into this situation.

Mr. DAVIDSON. If you take the Calumet River you have to take everything that comes down it?

Mr. RANDOLPH. Everything that comes into it; yes, sir.

The CHAIRMAN. It would be necessary to build a very considerable intercepting sewer. There is another proposition before this committee now which looks like development farther on east than Indiana Harbor.

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. A very considerable development.

Mr. RANDOLPH. Well, you know the Calumet River runs for many miles to the east through Indiana, and all of these proposed improvements are along one branch or other of that river.

The CHAIRMAN. The probable plan would be, then, not by an artificial intercepting sewer, but by sewers which tapped the Calumet River?

Mr. RANDOLPH. Yes, sir.

The CHAIRMAN. I believe that is all, Mr. Randolph, unless there is something further.

Mr. RANDOLPH. I am very much obliged, gentlemen.

(The committee thereupon proceeded to the consideration of other matters, after which it adjourned.)

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Monday, April 16, 1906.

The committee met at 11 o'clock a. m., Hon. Theodore E. Burton in the chair.

The CHAIRMAN. Mr. Hanson, we desire, if possible, to finish this hearing in an hour. First I take it you desire to be heard on the legal phases of the question.

Mr. HANSON. Yes, sir; and I think at the same time I will give a short history of the company, if you please.

The CHAIRMAN. Very well.

STATEMENT OF J. H. HANSON, ESQ., COUNSEL, NIAGARA COUNTY IRRIGATION AND WATER SUPPLY COMPANY.

The CHAIRMAN. Mr. Hanson, we would like to hear from you whether any question is raised as to the right of Congress to pass the pending bill.

Mr. HANSON. We do raise that question.

The CHAIRMAN. We would like to hear from you on that point.

Mr. HANSON. The title of the bill is for the control and regulation of the waters of Niagara River, for the preservation of Niagara Falls, and for other purposes. In the body of the bill no other purpose appears than the purpose to preserve the beauty of Niagara Falls, and our position is that it is not within the power of Congress to exercise any control over navigable waters of the United States excepting for the purpose of controlling navigation in the interest of interstate and foreign commerce. That doctrine is laid down very strongly in 107 United States. In 78 United States the doctrine is laid down that has been followed and accepted in most of the States of the Union, that a riparian owner on the banks of a navigable river has valuable property rights to the use of the waters of that river for domestic purposes and for manufacturing purposes, and that he can not be deprived of those rights without compensation by any person other than the sovereign power; and that the sovereign can not exercise the right to take away his property in the river arbitrarily, that the State must exercise its control over the waters of the river with due regard to the property rights of the riparian owner, and that the riparian owner must exercise his rights to the use of the waters of the river with due regard to the Government control of the waters in the interest of navigation.

Recently in the courts of the State of New York the question arose in this way. A riparian owner along the banks of the Hudson without any authority from the State, without having acquired the rights to the use of the bed of the river, constructed a wharf in the Hudson River. Suit was instituted by the attorney-general for the purpose of restraining further use of the wharf and to compel its removal. The court held there that the question was a question of fact to be determined in a court of law whether the structure itself was a nuisance, and whether it did interfere with navigation, and since the State failed to establish that fact it must fail in maintaining its cause of action.

The United States Supreme Court in 174 United States has practically held the same doctrine, in the action which arose to restrain the the use and diversion of the headwaters of the Rio Grande. It was there held by Mr. Justice Brewer that whether the diversion of water interfered with the navigable capacity of a stream was a question of the fact, that the State could not say arbitrarily that the diversion of any water would interfere with navigation. It was something to be determined in a court of equity.

Mr. ALEXANDER. Where is that case to be found?

Mr. HANSON. In 174 United States. All these cases are cited in the brief I have here, which will be printed.

The pending bill proposes to take away these property rights which from time immemorial the courts have held belong to every riparian owner, and you are going to make the right to take away waters from Niagara River or any navigable stream depend on a revocable license of the Government. The result of that is going to be, gentlemen, that

you are going to impair, ruin, the equities of every company now operating at Niagara and every company which contemplates a development there. We, ourselves, are riparian owners, we own a portion of the bed of Niagara River and we are entitled by virtue of that ownership to divert and use the waters of Niagara River so long as that diversion does not interfere with the navigable capacity of the stream. We purpose to take the waters at a point where navigation ceases; we purpose to discharge the waters at a point above where navigation begins, and we say we have a perfect right to do that.

When our works are completed if we do interfere by taking 10,000 cubic feet of water per second, and if 5,000 cubic feet of water per second would not amount to an interference then we would be entitled to use the 5,000 cubic feet per second.

The CHAIRMAN. Do you find any case, Mr. Hanson, in which Congress has asserted its right to prevent the diversion of water from a navigable stream in which the courts have denied that right, have overruled the act of Congress?

Mr. HANSON. I find in 174 United States, that I have referred to, that Justice Brewer says that it does not follow as a matter of course that the Government may succeed in such an action. It must establish that the navigable capacity of the stream has been destroyed or injured or impaired. I do not find any other—

The CHAIRMAN. He states, however, in that case, does he not, that the jurisdiction of Congress does not extend merely to the navigable portions but to the nonnavigable portions of the stream as well?

Mr. HANSON. Yes, sir.

The CHAIRMAN. Suppose Congress should in its wisdom or unwisdom decide that all the water in a navigable stream ought to remain, in order that the greatest possible depth might be obtained; and instead of dredging the channel deeper, that Congress should decide to conserve all the waters flowing into a stream; is it not within the power of Congress—

Mr. HANSON (interrupting). I do not think so.

The CHAIRMAN. In other words, your contention is that Congress has merely a sort of *prima facie* right to control navigable streams, and that the real question is one of fact to be determined by the courts, and the courts may review the action of Congress?

Mr. HANSON. That is not quite my contention. My contention is that every owner along the banks of a navigable stream has a vested property right to the use of the waters of that stream, subject to the paramount right of the Government to control those waters in the interest of navigation alone; that each right must be enjoyed with due regard to the rights of others; that the Government can not arbitrarily say to the riparian owner, "You may not take any water from this stream," but that the riparian owner may not take so much that the navigable capacity of the stream is ruined or destroyed.

The CHAIRMAN. In maintaining the navigability of a stream, does not Congress have the right to maintain its natural condition and prevent diversion?

Mr. HANSON. I do not think so; not initially, not arbitrarily. I think the riparian owner has the right to use the water to the extent that it does not interfere with the navigation of the stream.

The CHAIRMAN. I think there are a number of cases to that effect—

Mr. HANSON. I have not seen them.

The CHAIRMAN. How could Congress exercise jurisdiction over navigable streams unless it has the right to insist that they be maintained in their natural condition without any decrease in the flow, or any diversion?

Mr. HANSON. Well, you mean Congress may establish the fact in advance that no water shall be taken from any navigable waters of the State?

The CHAIRMAN. Can not Congress say what quantity of water shall be left in a navigable stream?

Mr. HANSON. I do not think so. I do not think Congress can say that so much water diverted will interfere with navigation unless, as a fact, so much water is diverted that it does interfere with navigation. Congress may declare that it will assume jurisdiction over the Niagara River and that it will control the taking of water from that river, but it may not say to John Jones, "You can not take any water from that river," when he is entitled to take it under the common law.

The CHAIRMAN. Do you find any case in which the right of Congress to exercise that paramount jurisdiction has been questioned, or that any court has assumed to overrule Congress?

Mr. HANSON. I do not find many cases where the question of the diversion of water has come up. It is mostly in regard to actual obstructions in the bed of the river.

The CHAIRMAN. Would not the same principle apply?

Mr. HANSON. The diversion of water is not an obstruction.

The CHAIRMAN. You say the riparian owner has certain rights. If that riparian owner has the right to divert water he would have the right to put structures along the bank in the stream, would he not?

Mr. HANSON. Yes.

The CHAIRMAN. Would you say that also was a question that the courts could review?

Mr. HANSON. In the absence of specific legislation by Congress, yes.

The CHAIRMAN. Suppose there is specific legislation by Congress and Congress has said that no obstruction may be placed in the river—

Mr. HANSON. No actual—

The CHAIRMAN. No actual obstructions—

Mr. HANSON. That the courts would take judicial notice of.

The CHAIRMAN. Has the Congress a right to say what is an obstruction?

Mr. HANSON. Yes; I think so.

The CHAIRMAN. Then may it not say what may tend to decrease the navigable quantity of the water?

Mr. HANSON. I do not think so. I think the word "obstruction" includes those things which the courts would take judicial notice of as being obstructions—like a dam or pier or wharf.

The CHAIRMAN. It would seem that if Congress has not that right to forbid diversions in navigable streams that in some instance the claim of the riparian owner would have been asserted in the courts and maintained.

Mr. HANSON. I do not find any case where the question has come up, excepting in the Rio Grande River, and that is a somewhat different thing.

The CHAIRMAN. In that case, the right of Congress over the non-navigable as well as the navigable portion is asserted in the opinion,

and is not this portion of Niagara River where you propose to make the diversion a navigable stream? Boats can go a mile or two below your location, can they not?

Mr. HANSON. Yes; it is navigable—it is practically navigable below.

The CHAIRMAN. So you can not base your argument on the fact that it is not a navigable stream.

Mr. HANSON. We have a right to divert water from navigable streams by virtue of riparian ownership. But we may not have the right to construct works out in the stream without the consent and a permit from the Secretary of War.

The CHAIRMAN. Do you mean to say, then, that there is a difference between a wharf or obstruction built into the stream which merely impedes navigation in a part of the river and, on the other hand, the right to divert the waters of the river, which lower the level through the whole length of the stream? Does Congress have a right to act in one case and no right in the other?

Mr. HANSON. That is not the question quite as I understand it. The riparian owner along the banks of a navigable stream has not any right to the bed of that stream; he hasn't any right to erect structures in the bed of that stream, whether they interfere with navigation or not, but he has a right to the use of the waters of that stream.

The CHAIRMAN. Where is the limit on that; may he draw off all the water?

Mr. HANSON. No; he can not interfere with the navigable capacity of the stream.

The CHAIRMAN. What do you mean by the navigable capacity of the stream?

Mr. HANSON. To draw off so much water that a stream that was once navigable is no longer navigable.

The CHAIRMAN. Suppose the depth of water in a stream is 16 feet and that the diversion will take off 6 inches of that water. Suppose the boats that ply on that stream are adapted to the depth of 16 feet of water. Do you say that a person can draw off 6 inches and maintain that it does not interfere with navigation? Has not Congress exclusive right to determine what shall be the depth of the water there?

Mr. HANSON. I do not think so.

The CHAIRMAN. Well, what is the limit, then?

Mr. HANSON. I think the courts—

The CHAIRMAN. Could you draw off 7 feet?

Mr. HANSON. The courts can say whether the diversion is an interference with the navigability of the stream, because when Congress attempts to say that it is destroying a property right—the right to use the water of the stream.

The CHAIRMAN. We have sought to determine what shall be the navigable depth of many channels. If the courts can go behind our action and determine what the depth shall be, it is giving to them a power of review which is destructive of the work we are doing.

Mr. HANSON. Have you ever attempted to prevent the diversion of water in those streams?

The CHAIRMAN. In every case I know of, whether a navigable or a nonnavigable portion of a navigable stream, where the construction of a dam is sought, unless it be this case here, the parties have come here for consent to do so; they have recognized that the legislative branch had exclusive control over navigable streams—

Mr. HANSON. I agree with you—

The CHAIRMAN (continuing). And that all diversions and obstructions are subject to the control of Congress, and can only be made by its consent.

Mr. HANSON. I had thought that the furthest courts had ever gone was to assert that Congress had plenary power over navigable rivers in the interest of navigation only, and that it might prevent obstructions which would injure or retard navigation.

The CHAIRMAN. Is it not within the power of Congress to absolutely determine as far as may be the depth of a navigable stream?

Mr. HANSON. Yes; but you do not do it by this bill; you do not say anything about depth of navigation or anything else; you are preserving the beauty of Niagara Falls, and that is all you are doing by this bill. I think you can preserve Niagara Falls by taking condemnation proceedings and establishing a public park, and paying people for their investments and losses, but I do not think you can attempt to do it by exercising your general control over rivers in the interest of navigation, because there is no diversion that will interfere with navigation there.

The CHAIRMAN. There might be a difference of opinion about that, whether it would interfere with navigation or not. It is evident that the diversion of 10,000 cubic feet per second must lower the level to some extent.

Mr. HANSON. Theoretically a pailful of water will lower the level of the river, but having due regard to the great magnitude of the stream and the point of diversion and the place of discharging the water back again I think it would be a very arbitrary exercise of power, if you have it, to say that your legislation is in the interest of navigation and that no diversion shall take place.

The CHAIRMAN. Of course, if any action is taken it is on the general ground of control over that river, whatever the basis for exercising that control may be, whether it is navigable, or because it is a boundary stream or whatever it may be.

Mr. HANSON. Pardon the question, but does this committee, and do you, Mr. Chairman, take the position that that control is general and not confined to the purpose of commerce? Do you say that you can control navigable waters for any purpose?

The CHAIRMAN. We take the ground that we have control over navigable boundary streams.

Mr. HANSON. In what respect does your control over boundary streams differ from your control over other streams except that the result is better accomplished by treaty than by legislation?

The CHAIRMAN. Perhaps it would not be necessary to select a better or the best way, if there is a way. I am unable to avoid the conclusion that there is a jurisdiction over a boundary stream different in its nature from that which exists over a stream which is domestic or entirely within the limits of the United States. So, although perhaps the most natural way would be to control the amount of water which flows and other questions pertaining to the stream by diplomacy, legislation might be enacted to meet the situation. I do not want to break in on your argument, but those are questions which it seems to me are important in connection with this stream.

Mr. HANSON. I think that that is our position on the legal proposition.

The CHAIRMAN. In other words, that Congress has no right to prevent the diversion of water from a navigable stream unless it interferes with the existing interests of navigation, which must ultimately be controlled by the courts.

Mr. HANSON. That is not quite it.

The CHAIRMAN. How can you avoid that position?

Mr. HANSON. The objection to this bill is that the sole object of it is to control the waters of a navigable stream for the further preservation of a site—for the preservation of Niagara Falls. There is no attempt to assert control of those waters in the interest of commerce.

The CHAIRMAN. Suppose Congress should pass a law upon the subject. Do you mean to say that you could go behind that law?

Mr. HANSON. It would depend upon what the law was.

The CHAIRMAN. If Congress has jurisdiction, may it not exercise it, whatever the immediate object is?

Mr. HANSON. You have to get your idea of the law from the title and the law itself; you are not bound by the title.

The CHAIRMAN. Suppose you read the title.

Mr. HANSON (reading):

For the control and regulation of the waters of Niagara River, for the preservation of Niagara Falls, and for other purposes.

But there is nothing in the act which shows that it is for other purposes.

The CHAIRMAN. Yes; there is a prohibition of the importation of power from Canada. That is another purpose.

Mr. HANSON. Yes.

Mr. BURGESS. Do you know of a case in which a court has attempted to decide the precise question of whether or not Congress can arbitrarily control the diversion of water from a navigable stream?

Mr. HANSON. I do not know of such a case.

Mr. BURGESS. The cases you speak of are cases in which the right to use the water was a question which arose and was decided by the courts in the absence of any legislative action on the part of the Government?

Mr. HANSON. In this Rio Grande case it was an action by the Government against an irrigation company that was diverting the waters of a navigable stream, and there the courts held that it was a question of fact whether the diversion did interfere with the navigable capacity of the stream and it proceeded on another theory—that the diversion was in the territory of New Mexico, the ownership of which was in the Federal Government, and that the Federal Government had a right to the undiminished flow of water through its own lands. That is good common law. Therefore it could step in in that case.

Mr. BURGESS. You do not contend, do you, that that touches the case I cite—of whether Congress has plenary power over a navigable stream to assert that no water shall be diverted from a navigable stream?

Mr. HANSON. I do not think that principle has ever been turned into a revocable license at the will of Congress.

Mr. BURGESS. I am asking for information.

Mr. HANSON. I do not know.

Mr. BEDE. I am not a lawyer; I am simply sitting as a juror in this case. As I understand it, you contend that the diversion of this water is a property right?

Mr. HANSON. Yes; by virtue of riparian ownership.

Mr. BEDE. And that this bill would confiscate a property right?

Mr. HANSON. Yes.

Mr. ALEXANDER. From whom did you get that right?

Mr. HANSON. By virtue of the ownership of the bed of the stream, and that was recently up in the case of a company known as the Schoelkopf Company. It had never acquired a use to the waters of Niagara River. In 1896 because of some threatened action at that time it did procure riparian rights, which confirmed their right to the use of the water of Niagara River. Subsequently the assessors assessed that right along with their other property as real estate and they went into the court and maintained it was a franchise and could not be assessed as real estate, and our court of appeals has held that its right to take water from the river did not depend upon that; that it was a corporeal hereditament which pertained to the bed of the river and the bed of the stream, and that is the doctrine that has been maintained in the United States courts.

Now, you turn around and say by this legislation you have not any property right there any more; that if you want a drop of water out of that river you must come to Congress and get a revocable permit, and you destroy millions of dollars of property.

The CHAIRMAN. You have not commenced work there yet, have you?

Mr. HANSON. Ten years ago there was an excavation made for the canal at the intake; there was about half a mile dug there, and at that time it was proposed that the canal discharge over the escarpment of Niagara, and there has been about half a mile excavated there; subsequently the plans were changed so the discharge would be at Devil's Hole. There have been about \$100,000 spent there so far.

Mr. DOVENER. Then I understand you to claim that the State has no limit, that the State can control that without limit—

Mr. HANSON. I beg your pardon.

Mr. DOVENER. And can grant a franchise there without limit?

Mr. HANSON. Possibly it might, but it won't. The State of New York has repealed all dormant charters.

Mr. DOVENER. Suppose the State has that right, the right you claim they have, to permit a portion; wouldn't it be unlimited?

Mr. HANSON. I think the right to take water from the Niagara River does not depend upon State grants. If a man owns a bank or any portion of the bed of the stream he does not have to go to the legislature to ask for power to take water from the river; it is just as much a property right as the ownership of his home.

Mr. DOVENER. Then he can take all, I suppose, according to your claim, and commerce and navigation—

Mr. HANSON (interrupting). No, sir.

Mr. DOVENER (continuing). Have no remedy?

Mr. HANSON. No; we can not take it to such an extent as will impair navigation.

Mr. DOVENER. That is what I asked you. Where is the limit?

Mr. HANSON. It is for the courts to decide.

The CHAIRMAN. Where is the limit?

Mr. DOVENER. The State courts.

Mr. HANSON. If the State has concurrent jurisdiction with Congress; but when Congress acts, then the State has no power to act—when Congress once asserts its paramount authority.

The CHAIRMAN. You maintain it is still for the courts to decide whether the diversion impairs navigation.

Mr. HANSON. Yes; upon a suit instituted by the Attorney-General of the United States.

The CHAIRMAN. You can see, I think, what sort of a conclusion you would come to on that. There would be navigation if you have water to float logs merely. Has not Congress the absolute right to determine the degree of navigation there, whether it shall be a deep channel or a shallow channel, whether there shall be 50 feet or 30 feet or 12 feet of water; has it not a right to insist upon the greatest possible depth?

Mr. HANSON. I think Congress would have a right in the interest of navigation to blast out the channel, and that the result of that work would interfere seriously with the power companies now operating there, and that they would be without remedy.

The CHAIRMAN. In other words, Congress has the right to expend money to dredge a channel to a greater depth, but it has not the right to prevent the diversion of the waters flowing in the natural manner in a channel?

Mr. HANSON. That is somewhat like it. That is, the navigable capacity of the Hudson is one thing; the navigable capacity of the St. Lawrence is another thing; the navigable capacity of the Rio Grande is another thing, and the Niagara River is another thing. Congress has the right to insist, the Government has the right to insist, that the navigable capacity of those respective streams be maintained in their natural state. The Government may step in and may increase or diminish that navigable capacity if it sees fit, and a riparian owner has no redress; but the riparian owner still has the right to divert and use the waters of that stream. It is a property right centuries old, and subject to be denied only by the paramount rights of the Government in the interest of commerce and navigation.

The CHAIRMAN. It is of considerable importance if your contention can be sustained. If that principle that you have enunciated is correct the riparian owner has the right to absolutely withdraw all the waters from a navigable stream.

Mr. HANSON. I do not think so; I do not say so.

The CHAIRMAN. You do not say he has, but your argument leads to that conclusion. If Congress has any right over navigable streams it is the right to say what depth there shall be and what flow of water, high or low, and if you say the maximum depth Congress fixes can be diminished by diversion you establish the principle that all the waters of the stream can be drawn out.

Mr. HANSON. No, I do not think so, Mr. Chairman.

Mr. ALEXANDER. Navigability is a fact?

Mr. HANSON. Yes.

Mr. ALEXANDER. And that fact is left to the jurisdiction of the courts to determine?

Mr. HANSON. Yes, sir. That has been held in the Federal courts; it has been held in the State courts.

Mr. ELLIS. In other words, your contention is that the State jurisdiction is in the courts and not in Congress?

Mr. HANSON. To determine whether a diversion, which is a property right, interferes with the navigable capacity of that stream in its natural state.

Mr. ELLIS. Even though the effect be to lower the surface of the water?

Mr. HANSON. Three inches or 4 inches. Does it interfere with the principle of the navigability of that stream in its natural state because the other man, the riparian owner, has a right to that water?

Mr. ELLIS. Then, the difference between your view and the view of the chairman would be as to the extent of the diversion. Somewhere you would admit that there would be jurisdiction to prevent such a diversion as would diminish the depth of the water.

Mr. HANSON. Yes; I think Congress has ample power to assert its control over navigable waters. It may enact that it will deepen the channel of Niagara; it may pass a law that it will make the falls navigable in some way or other, and it has the right to do it; but it can not make a revocable license of our property right to use the water of that stream.

Mr. BURGESS. To what extent do these riparian rights go under common law—to the extent of using the water for manufacturing purposes?

Mr. HANSON. Yes; for manufacturing and domestic purposes. It is well established in our own State under the Federal authorities, and I guess in every State in the Union, that the right extends to the use of the water for all purposes.

Mr. DAVIDSON. Do you claim you have a right as a riparian owner to take water from a stream, divert its course, and restore it to the stream at a lower point as against the riparian owners below you?

Mr. HANSON. Not to their injury, but under our charter the State of New York gives us the power to condemn the rights of the intervening owners, and our charter has been held constitutional recently; we have been held to have power to do that. Otherwise we could simply take the water on our land and discharge it on our own land without leading it around some other fellow's land; that would be our natural common-law right.

Mr. DAVIDSON. But the legislature has given you as one riparian owner a superior right over another riparian owner on the same stream.

Mr. HANSON. Yes.

Mr. DAVIDSON. And the legislature of your State has established the principle that one individual can condemn the property of another individual and take it for his own use?

Mr. HANSON. Our company is organized for a public purpose, for that public purpose it may take the rights of lower owners.

Mr. DAVIDSON. It has given your company the right of eminent domain as against other power companies chartered under the laws of the same State?

Mr. HANSON. No; we do not interfere with any other power companies.

Mr. DAVIDSON. Are not there other power companies interested below you?

Mr. HANSON. Yes.

Mr. DAVIDSON. They are riparian owners, are they not?

Mr. HANSON. Yes.

The CHAIRMAN. Is there a limit in your charter to the amount you may divert from the river?

Mr. HANSON. There is not; it is unlimited. We have, however, always expressed a willingness to agree to a reasonable limitation. We think there ought to be a reasonable limitation.

Mr. DOVENER. You understand that riparian owners below you have the right for commerce and navigation to use that stream?

Mr. HANSON. Oh, yes.

Mr. DOVENER. Does the legislature of New York give you any right, without compensating those people, to destroy the navigable section of the river?

Mr. HANSON. Oh, no; we do not destroy it.

Mr. DOVENER. If you take enough water you destroy it.

Mr. HANSON. No; not over Niagara Falls; it is pretty basty navigation that you would have there.

The CHAIRMAN. How far is it navigable below the intake?

Mr. WORTHEN. There is only very little navigation below, down to Schlosser Dock, some 2 or 3 miles below our intake; but only a few little excursion boats run below that.

Mr. HANSON. Does commerce go down there at all?

Mr. WORTHEN. No; I do not think so. No commerce—except excursion boats still continue to run there.

The CHAIRMAN. The stream, however, is readily navigable down that far, is it not?

Mr. WORTHEN. Below the intake of our canal it would not be navigable for boats drawing over 10 feet. It is navigable to the point of our intake for boats drawing about 12 or 14 feet.

Mr. ALEXANDER. There is a project to make it navigable to Schlosser's Dock; to have 14 feet to that point.

Mr. JONES. I understand you claim this bill does not regulate or pretend to regulate navigation?

Mr. HANSON. No, it does not. It has for its object the preservation of Niagara Falls by preventing diversion from the Niagara River by people who are by common law entitled to the use of the waters, and by prohibiting the importation of power into this country. The result of the bill will be to put a good many hundreds of millions of dollars of our money into the Dominion of Canada. That power is there and they are developing it, and if we can not make stuff in this country we will go there and get cheap power; that will be the result. Canada does not propose to legislate against the diversion of water for the purpose of getting power.

Mr. BISHOP. Let me ask you one question. Your contention is that Congress has no right to legislate for the preservation of the falls as the falls?

Mr. HANSON. That is my contention; that if you have a right to do so in the case of Niagara, you have a right to go all over the country and legislate in respect to every navigable river of any State wherever you may find a waterfall, and that at a time when the great development of this country is the development of water power. It is only a few years ago, in the memory of some of you, when the power and the machinery were always to be found together, the old mill wheel, which created the power, and the machinery alongside of it. Then there came a time when the potentiality of power, the coal, was taken to the factory, and it has only been a few years that power could be carried two or three or five or six hundred miles to the factory. The result is that every water power in the world is being developed, and just at this stage you propose to step in and say that this great water

power at Niagara may not be used; that Canada may use it, but that we can not use it.

Our position is that you can have both the scenic beauty at Niagara and you can have the hundreds of millions of dollars a year of commercial value from Niagara, and we can demonstrate it if you give us a chance.

Mr. RANSDELL. I would like you to demonstrate that.

Mr. HANSON. Our engineers will demonstrate it.

Mr. BISHOP. Then you contend you have the right and we have not the right to prevent the absolute extinction of the falls by taking away water above and putting it back again below?

Mr. HANSON. If that diversion is going to destroy navigation, if the taking of the water would impair the natural capacity of Niagara for navigation, then you could prevent it by legislation directed to that purpose.

Mr. BISHOP. Our authority, then, the authority of the General Government, is limited wholly and solely to the matter of navigation?

Mr. HANSON. Yes.

The CHAIRMAN. And further, according to your statement just made, we do not have the right to exercise any authority at all until something is to be done which destroys the navigability.

Mr. HANSON. No; which tends to impair it.

The CHAIRMAN. Tends to impair it?

Mr. HANSON. The navigable capacity.

The CHAIRMAN. Do I understand that, then, to be your view of the law?

Mr. HANSON. Yes, sir.

The CHAIRMAN. That we only have authority to act when something is being done which tends to impair the navigable capacity?

Mr. HANSON. Which will impair the navigable capacity of the stream.

The CHAIRMAN. Tends to impair?

Mr. HANSON. Or will impair.

The CHAIRMAN. Suppose you take out a third of the flow of a river that has a discharge of 180,000 cubic feet per second? Would not that tend to impair the navigable capacity of the stream?

Mr. HANSON. I do not think so.

Mr. LAWRENCE. If I understand Mr. Hanson's contention, in that case there would be a question that would have to be determined by the courts.

Mr. HANSON. Yes.

Mr. LAWRENCE. As to whether taking away a third of the stream would impair the navigation?

Mr. HANSON. Yes.

Mr. RANSDELL. He says he can demonstrate that the amount of water desired can be diverted and still the scenic beauty can be preserved. Let him make that demonstration.

Mr. ALEXANDER. You will hear plenty of that before you get through.

Mr. RANSDELL. You can not do it all in an hour.

Mr. HANSON. It has been suggested here that in order to get further information this committee appoint a subcommittee to take testimony on this subject and in that way fully inform themselves. The general opinion throughout the country from people who have never seen Niagara Falls, and never will see them, is that the falls are ruined

now. As a matter of fact, I think no human being can tell whether water is being diverted from the falls or not by looking at them. There is no hasty legislation needed in regard to this, for there is no plan being developed that will take any more water from the falls in two or three years.

The New York legislature has repealed every dormant charter. You have heard one side of it—the sentimental side—from people all over the United States. You have heard the newspaper side. We want a chance to demonstrate before this committee by testimony, by competent evidence, the other side, which is the commercial side, and in that connection I can say that we exist by commerce. Gentlemen, your committee exists for that purpose; we live upon it.

The CHAIRMAN. Do you care to speak further?

Mr. HANSON. I think not. The history of the company is something—

The CHAIRMAN. When was your charter granted?

Mr. HANSON. I can save time by having this printed. This is a history of the company and our views of the law (referring to brief which follows Mr. Hanson's statement).

The CHAIRMAN. When was the charter granted?

Mr. HANSON. In 1891.

The CHAIRMAN. To what company?

Mr. HANSON. To the Niagara County Irrigation and Water Supply Company. The charter contained a self-executing clause that it would be forfeited if work was not commenced within five years. Work was commenced within two years, and work of some sort, surveys, or the acquisition of property rights, or something else, has continued from that time until to-day.

The CHAIRMAN. Are you able to state how much has been actually expended in the way of construction?

Mr. HANSON. I should have to ask my colleague.

Mr. WORTHEN. In the neighborhood of \$175,000 for surveys, lands, etc.; but altogether there has been about \$400,000 actually expended up to this time.

Mr. JONES. How much water do you expect to use for irrigation purposes?

Mr. HANSON. None at all; the charter does not give us power to generate electricity at all. It was never thought possible to transmit electric energy.

Mr. JONES. No; what I am asking you about is irrigation.

Mr. HANSON. No; we would not use any. I do not think it would be feasible or practicable. I think it is well irrigated up there, well watered.

Mr. Hanson submitted the following brief:

Before the Committee on Rivers and Harbors in the House of Representatives. In the matter of legislation now pending before the Congress of the United States of America, the object of which is to control the waters of the Niagara River, for the preservation of Niagara Falls, etc.

This brief and argument are submitted by "Niagara County Irrigation and Water Supply Company."

FACTS.

The Niagara County Irrigation and Water Supply Company was created and organized by a special act of the legislature of the State of New York, known as chapter 259 of the laws of 1891, entitled, "An act to incorporate the Niagara County Irrigation and Water Supply Company."

A copy of the company's charter is annexed hereto.

The purposes of its creation are the maintenance of a public waterway from a point in the Niagara River, from the west bank of the Cayuga Creek to the east line of the mile reserve, so called, as may be most convenient. * * * The supplying from said waterway of pure and wholesome water to the village of Lewiston and the inhabitants thereof, and to any other city or village now or hereafter located in the towns of Niagara, Lewiston, and Porter, in the county of Niagara, and to the inhabitants thereof; the storage, accumulation, conduct and supply, lease and sale of water for fire, sanitary, municipal, mechanical, mercantile, manufacturing, domestic, commercial, or agricultural purposes, and for the purposes of irrigation.

The company is authorized, for the purposes of its incorporation, to take water from the Niagara River between the points hereinbefore specified and to discharge such water into the Niagara River at such points near or adjacent to the towns of Lewiston or Porter, as it may select.

It is authorized to intercept and divert the flow of waters from the lands of riparian owners and from persons owning or interested in the waters which may be necessary for the purposes of the corporation.

The general powers, duties, and liabilities of the corporation are, by its charter, regulated by the following statutes of the State of New York:

General corporation law, stock corporation law, and that section of the transportation corporations law which governs the organization and incorporation of waterworks corporations.

Section 10 of the company's charter requires that the work of the corporation shall be actually and in good faith commenced within five years from and after the date of the passage of the act; otherwise its corporate rights and powers should cease and determine.

In this connection the minutes of the company show that the organization was perfected very shortly after the passage of the act, and by-laws for its government adopted. From 1891 down to 1893 the records of the company show that there were efforts made to begin the actual work of developing the company's franchise, which culminated in 1893 in a contract between the company and one William T. Love, by which, for certain considerations, Love was to complete the work outlined in the company's charter. Directly thereafter he actually did commence to acquire options upon some property and to purchase other pieces of property and to excavate for the canal referred to in the charter. This excavation was commenced in 1894. The proofs of this are articles published in the daily press of that year and affidavits on file with the company of numerous residents of Niagara County who were witnesses of the work. The company has since its creation paid its annual franchise tax each year to the comptroller of the State of New York, as well as the general taxes for city, municipal, and school purposes.

In the year 1896 the contract with William T. Love was terminated by reason of his failure to prosecute and complete the work of excavating the canal. A reorganization of the company was then had, the amount of its capital stock was fixed, fully subscribed for, and paid in. Efforts were made to prosecute the work by the company on its own account, and considerable work in the nature of excavation was actually done. At this time the plans of the company contemplated a canal having its mouth at or near Cayuga Creek, on the Niagara River, and discharging over the escarpment at Lewiston. The later excavations that were made by the company were made in the vicinity of Lewiston. This work was abandoned during the succeeding year, several additional surveys were made, and finally the route of the canal was changed so that the discharge was at the Devils Hole property, as shown on the maps filed before this committee by the engineer. During all the existence of the company, and down to the present time, it has maintained an office force and offices—one in Buffalo and one in New York City. Proceedings for the acquisition of a right of way by condemnation are pending, and options for other parts of the right of way have been acquired.

There is no doubt, therefore, that the provisions of section 10 of the charter of the company have been complied with, and that it has not forfeited its rights and powers.

Some years ago the attention of the interests that are now in control of the property was called to this charter and to the rights given thereunder, and from that time until within the past few months negotiations have been pending for the sale on one hand and the acquisition on the other of the franchise of this company.

In the opinion of the counsel representing those interests that are now in control of the company, there appeared to be a constitutional objection to the validity of the company's charter, in that, since the waters of the Niagara River were public and the usufructuary interest therein was public, they were public property of the State of New York, which could not be granted for any private or local purposes without the affirmative vote of two-thirds of the members of each branch of the

legislature of said State. The charter in question did not on its face, and did not in fact, receive such two-thirds vote. At the time this objection was raised the question was then pending in the courts of the State in a proceeding brought by the company against the College Heights Lands Company to acquire lands for its right of way by condemnation. At the special term the question was decided against the defendant and in favor of the petitioner. An appeal was taken to the appellate division of the supreme court of the fourth department of the State of New York, which was argued at the January, 1906, term. At the opening of the term in March, 1906, by a unanimous decision, the court affirmed the order of the special term. The result of this decision is to establish unmistakably the constitutionality of the charter of the company. Since the case has not been reported, a portion of the opinion of Mr. Justice Williams is herein quoted:

"There is no doubt that the purposes of the corporation are local and private, so that the question is narrowed down to the inquiry whether by sections 4 and 6 of the act there was an appropriation of public property for the purpose of the corporation.

"1. The State has no property or ownership in the waters of Niagara River within the provisions of the constitution in question, although it has dominion over the same and power to regulate the use and diversion thereof and encroachments thereon as navigable waters of the State.

"Sweet v. City of Syracuse, 129 N. Y., 331-334.

"Waller against State of New York, 144 N. Y., 579-599.

"So far, therefore, as the act may be said to appropriate the water of the river, it does not violate the provisions of the constitution in question.

"2. The only question remaining is whether the act attempted the construction of works, etc., necessary to take the waters from the river so as to appropriate any property in the bed of the river in violation of said constitutional provisions. The State was in a certain sense the owner of the bed of the river. It held the property not as a proprietor, but as a sovereign in trust for the public.

"Saunders v. H. R. R. Co., 144 N. Y., 75-85.

"There is a view taken of such a case as the one in question which seems reasonable. That the legislature does not transfer any title to the bed of the river to the corporation, and does not even license the bed thereof, but merely confers power upon the corporation to do what is necessary to carry out its purposes. It does not confer any right upon the corporation to take or make use of the property of other persons or the State until it has acquired such property in a legal way.

"Matter of N. Y. & L. I. Bridge Co. 90, Hun., 312-326. Sc. 148 N. Y., 540-555.

"In this view the act is not to be regarded as appropriating any property of the State to the use of the corporation in either the water or the bed of the stream in violation of the constitution. It has designated the general powers of the corporation and if any property rights are required from the State involving the appropriation of property, they must still be acquired in the manner required by law under the constitution. We do not think a necessary construction of the act requires us to hold that it violates the constitutional provisions in question."

This opinion is of importance at this time in view of the fact that there has been filed with your committee the report of the special committee of the Chamber of Commerce of the State of New York in reference to the diversion of the waters of the Niagara and filed with such report and made a part thereof is the opinion of Hon. George W. Stevens, president of the Jamestown Bar Association, which is somewhat lengthy, and the conclusion of which opinion is that the charter of the company in question is void because it did not receive the affirmative vote of two-thirds of the members of each branch of the legislature of the State of New York.

The company is the owner of a considerable portion of the bed of the Niagara River in the vicinity of the Cayuga Island, having received title thereto from one Long, who was the patentee of the State of New York. Its rights therefore to take and use the waters of the Niagara depend—

1. Upon the legislative grant.
2. Upon its ownership of the bed of the Niagara River and the uplands adjacent thereto.

That by virtue of its ownership of the bed of the Niagara River and the uplands adjacent thereto it is entitled to the use of the waters flowing over the portion of the bed of the river which it may own as a corporeal hereditament independently of any legislative grant was established in this State recently in the case of the People ex rel. Niagara Falls Hydraulic Power and Manufacturing Co. v. Smith, 70 App. Div., 543; 175 N. Y., 469.

This case likewise is of importance in view of the fact that Appendix A of the report of the American members of the International Waterways Commission, which has been filed with your committee, is an opinion by Attorney-General Han-

cock, of the State of New York, dated in 1895, in which he asserts a contrary doctrine.

This opinion of the attorney-general, of course, antedates the decision above referred to, but the decision, at least, was several years old and was accessible to the members of the commission at the time their report was made.

In the printed report of the American members of the International Waterways Commission, hereinbefore referred to, this company is mentioned on page 8 in the following language:

"Another company, the Niagara County Irrigation and Water Supply Company, has done some work and claims that its charter has thus been preserved, but it has diverted no water."

It is again mentioned in Appendix D, on page 19.

RIGHTS OF THE COMPANY.

The concession by the Waterways Commission that the company has done some work implies that it has expended some money. In fact, the expenditures made to date are something in the neighborhood of \$400,000. From the view point of good morals, at least, it should not be deprived of the benefits of those expenditures without compensation.

The proposed legislation of Congress, if constitutional, while of course it does not and can not repeal the charter of the company, would most effectually defeat the purposes of its creation.

Congress attempts, by its proposed legislation, to declare that the right of riparian owners to the use of the waters of the Niagara River depends upon the revocable license of the Federal Government. This, it is respectfully contended, is without the power of Congress, and is an appropriation of well-known, well-established property rights without an attempt to make compensation therefor.

The rights of riparian proprietors are greater or less depending upon whether the ownership includes the bed of the stream or not.

1. In the case of a stream where the title to the bed and to the banks is in a single proprietor, he has the exclusive right to the use of the water flowing over his lands, providing always that he does not injure the rights to the use of the water of the lower owner. If such a stream is navigable in fact, then his rights are held subject to certain rights of the public therein.

2. Riparian owners along banks of public navigable streams, the title to the bed of the stream of which is in the State or General Government, likewise have certain vested and valuable rights to the use of the stream, but in such case those rights are subject to the paramount rights of the State to utilize the water of the stream for the public use and to the paramount right of the Federal Government to the control of the waters thereof in the interest of interstate and foreign commerce. Those riparian rights, however, are property and are valuable, and, although such property must be enjoyed with due subjection to the rights of the public, it can not be arbitrarily or capriciously destroyed or impaired. It is a right of which, when once vested, the owner can only be deprived in accordance with established law, and, if necessary that it be taken for the public good, upon due compensation.

Yates v. City of Milwaukee, 77 U. S., 497.

Niagara Falls H. P. Mfg. Co. v. Sweet, 70 App. Div. N. Y., 543; 175 N. Y., 469.

The position of the company is—

1. That it concedes the power of Congress over the waters of the Niagara River, and that such powers are paramount to those of the State and to its own rights, but that they can not be exercised arbitrarily to defeat its vested property rights.

2. That its rights to the use of the Niagara River are not dependent upon permission from Congress or revocable license from the Federal Government, but have existed and do exist as an incorporeal hereditament to its land, which he may be compelled to yield or surrender for the public purposes of navigation and in the interests of interstate and foreign commerce.

3. That the paramount right of the State is to be exercised with due regard to the vested property rights of riparian owners, and that the rights of riparian owners are to be exercised subject to the public right of navigation.

4. That the company has power to erect upon that portion of the bed of the river to which it owns the fee such structures as may be necessary for its beneficial use and enjoyment of its rights, providing only as a matter of fact that such structures do not interfere with navigation. That, if they do interfere with navigation, by virtue of its ownership of the bed of the stream, it may not be deprived of making such structures and it can not be required to remove them without compensation.

This is in view of the fact that navigable waters are limited to the line along the shore, in the case of navigable fresh waters, at which navigability ceases. (Gould on Waters, 3d ed., sec. 86, and cases cited.)

The rule, possibly, would be otherwise if title to the bed of the stream were in the State or the Federal Government.

THE RIGHTS OF THE FEDERAL GOVERNMENT AND OF THE STATE, RESPECTIVELY.

The rights of the Federal Government over navigable waters are not exclusive, nor are the rights of the State to control the waters of navigable rivers within its borders surrendered by the clause in the Federal Constitution which gives Congress the power to regulate interstate and foreign commerce.

The State has ample power to control the use of navigable rivers within its borders, and its acts are conclusive until Congress sees fit to act. So long as Congress is dormant the acts of the State are valid. When Congress, however, once asserts its control over navigable water, then the acts of the State may be nullified by Congress. The shores, however, of navigable waters and the soils under them were not granted by the Constitution to the United States, but were reserved to the States, respectively.

Pollard v. Hagan, 3 Howard, 212.

The power vested in General Government to regulate interstate and foreign commerce involves the control of the waters of the United States which are navigable in fact so far only as it may be necessary to insure their free navigation when, by themselves or their connection with other waters, they form a continuous channel for commerce among the States or with foreign countries.

Escanaba Transportation Co. v. Chicago, 107 U. S., 678.

This, I think, is the extent to which the Federal authority over navigable rivers may be extended. Congress can only control the use of navigable streams in the interest of navigation or commerce. If it attempts to act for any other purpose in the matter of regulating the use of the waters of a navigable river, to the detriment of the rights of riparian owners, then its acts are unlawful and unconstitutional.

This leads to some consideration of the nature and character of the bill now pending before this committee.

It does not attempt to declare that the diversion of waters from the Niagara River are an obstruction to navigation there. The whole object of the bill is to preserve the beauty of the Niagara Falls. Now, the Federal Government can accomplish this, probably, by taking steps to establish a public park and by the acquisition of property and property rights to preserve the beauty thereof. It can not do so by any power under the Constitution or under the decisions of the court by any attempt to regulate the waters of a navigable stream, because its rights to the use of these waters is not exclusive, but rather to be enjoyed, used, and exercised in common with the rights of riparian owners.

The question whether a diversion of the waters from the Niagara River is an obstruction to commerce, is one of fact, to be established, like any other fact, by proper proceedings in equity under the direction of the Attorney-General of the United States and when such proceedings are instituted then it becomes a question of fact whether the act sought to be enjoined is one which fairly and directly tends to obstruct, interfere with, or diminish the navigable capacity of the stream, and it does not follow that the courts would be justified in sustaining any proceedings so brought to restrict any appropriation of the waters of a navigable stream. The question is always one of fact whether such an appropriation substantially interferes with the navigable capacity of a stream within the limits where navigation is a recognized fact.

United States v. Rio Grande Dam and I. Co., 174 U. S., 709.

And in any such proceeding when the State invokes the aid of a court of equity it is subject to the same rule applicable to ordinary suitors, and an injunction will not be granted upon its application unless injury, actual and material and not merely fanciful, is shown.

People v. Mould, 37 App. Div., N. Y., 35.

The above was a case where a riparian owner on the Hudson River erected a wharf upon his uplands without having obtained a grant from the State of the soil underneath the waters and thereby created a purpresture. An action was brought by the State of New York, as plaintiff, to compel the defendant to remove the wharf, etc. It appeared upon the trial that the structure did not affect navigation or any public

right or interest and was not in fact a nuisance, and that therefore its continuance would not be restrained as a nuisance or its removal directed.

The plans of the company are to take water from the Niagara River at La Salle, at which point navigation practically ceases, to lead such water round the waters of Niagara Falls and the rapids of Niagara, where navigation is impossible, and to discharge the water into the river at the whirlpool above the point where navigation in the lower river begins. It is scientifically true that the withdrawal of water at La Salle will not interfere with navigation above that point, and since the water is to be returned to the river above where navigation is resumed, it naturally follows that there will be no obstruction or interference to navigation below.

The company, therefore, contends:

1. That it has the right, by grant from the State and by virtue of riparian ownership and ownership to the bed of the Niagara River, to use and divert the waters of the river for manufacturing purposes, and such right must yield only to the paramount right of the Federal Government to control such waters in the interest of navigation.

2. That whether its proposed diversion will diminish or impair the navigable capacity of the Niagara River, is one of fact to be determined by proper legal proceedings instituted by or on behalf of the Attorney-General of the United States.

3. That the proposed legislation by Congress to control the waters of the Niagara River for the purpose of preserving the beauty of Niagara Falls is not in the interest of improving or preserving the navigability of Niagara, and is not within the power of Congress and is, therefore, unconstitutional, since, if exercised, it would effectually destroy the vested property rights of this company and other companies, without due process of law.

The legislation proposed by Congress seems to be in response to a very general public clamor for the preservation of Niagara Falls, which is uninformed and irresponsible. The power companies contend that they can use all of the waters which they are now authorized to use, assuming that a reasonable limitation is placed upon the rights of this company, which it is willing to concede, and that the people at large may have the inestimable advantage of a great industrial activity and prosperity which would follow, and at the same time the substantial beauty of the falls or cataract could be maintained.

This, we do not state carelessly, but are prepared to prove the same by abundant, scientific proof. There is no need, at the present time of hasty and ill-advised legislation, the principal effect of which would be to seriously injure property and property rights and the securities of the company now operating at Niagara Falls or authorized to operate. The State of New York has repealed every dormant charter at Niagara Falls and there is no danger that further charters will be granted in face of the legislation recently passed, the object of which was to prohibit any further grants to use the waters of the Niagara River. There is no company now operating there or authorized to operate that can or will install works for the diversion of waters within a considerable period of time. And there is ample time for the Government to make a more thorough investigation into the subject with the idea of preserving the vested interests of the companies as well as the beauty of the Falls. And there is a real economic necessity for such action.

The power of the future, concededly, will be electric energy. This is made possible by reason of the fact that within recent years only has the question of the economical transmission of electric energy been solved. The solution of this problem has brought into the market water powers all over the world and there is no development that is more active in all of the countries of the world than that of water powers for the generation of electricity. The total value of the water power at Niagara Falls, if all used, would be enormous and would equal the wealth of nations. The power which may be abstracted without seriously impairing the Falls, at a proper capitalization, would greatly exceed in value the entire value of the agricultural products of the State of New York.

Just now there is a public sentiment upon this side to preserve the Falls even at the expense of ruining the power companies. Upon the other side of the river the sentiment is contrary. The effect of the measure before this committee would be to drive industries, the manufactured products of which would amount to hundreds of thousands of millions a year from the United States to Canada, and we respectfully submit that any such measure should receive the most careful consideration from both branches of Congress.

We do not wish to destroy the sentimental or beautiful about Niagara Falls, but we do wish to preserve our property and property rights and to develop them in such a manner that the world at large may enjoy the benefits of both.

J. H. HANSON, *Counsel.*

STATEMENT OF MR. H. L. COOPER, ENGINEER, NIAGARA COUNTY IRRIGATION AND WATER SUPPLY COMPANY.

Mr. COOPER. Mr. Chairman and gentlemen, my part in this business is to speak of the engineering side, pure and simple, and I do so from three or four years' experience at Niagara Falls and some twenty years elsewhere from the purely professional constructive side. In view of that experience this legal side does not appeal to me very much. However, speaking on the question of sides it seems to me that all of the talk that has been given this question up to this time has been very one-sided, and I am reminded of a story that comes from Greek mythology, where they had a river that was so narrow that it only had one side; and possibly in view of the fact that this river has four sides, practically, we have a right at least to discuss two sides of this proposition.

As far as the engineering question goes, speaking personally, and speaking, I think, for the engineers of America as a whole, I believe, and we all believe, the beauty of Niagara Falls should not be impaired. I would not lend my time to a destruction of Niagara Falls for a great many reasons. The first one is, that I don't have to. The second one is that I do not believe that anything of that kind should be allowed.

I am very sure that a good many people who have discussed this question are honest in their belief that you can not take water out of Niagara Falls without destroying the beauty of them, and I will say that theoretically you can not do that, but practically you can.

Upon the question of the sentimental side I undertake to say that it all lies upon the question of how it seems to the looker on; that is the whole question as I understand it from that side. I have been at Niagara Falls for four years building a plant on the Canadian side—and by the way they expect to sell half of their power in American markets, and to compete with American companies on the American side. I speak from experience as an engineer connected with that plant.

I know that this problem of the amount of water that is going over the falls—the thing we look at—can not be told by the eye within limits very wide in their extremes as regards the quantity of water that the falls are discharging. For instance, if the wind is blowing from the northeast it will blow the water back up into the lake, and it will make 3 feet difference at Horseshoe Falls as to the amount of water that is going over the falls. It is a fact that I have never been able to tell what the gauge was at Niagara Falls by the looks of the falls, and I will rest our contention of this whole matter upon the ability of any sane engineer or any sane committee of men to tell how much water is going over the falls, or whether the gauge is up or down by the looks of the falls. I think in that regard more particularly it is so with reference to the Horseshoe Falls, where there is a great amount of water.

The next point with reference to Horseshoe Falls, without dismissing it, is that the proposal of this company that is before you to-day is to be allowed to take as much water out of the river as is represented by the difference between the amount that the Canadians now have and the amount that the Deep Waterway Commission recommends that we shall have on the American side, which amount is 17,900 cubic feet per second. In other words, we propose to take that 17,900 cubic feet out from Cayuga Island, 7 or 8 miles above the falls. The taking of the

water out at that point to the extent of 17,900 cubic feet per second figures out that about only 13 per cent of it comes from the American side, and 87 per cent of it comes from the other side, as near as anyone knows—and in this talk I want to be understood that the statements I make are general statements; they are not last fractions, but general statements, as near as we can get at them.

The taking out of 17,900 cubic feet per second at Cayuga Island, as near as we know (and I base this upon the best formula we have in hydraulics to-day—a formula we will stand on before any committee of engineers that may investigate the subject), will lower the depth of water over the Horseshoe Falls about 6 inches. And I say at the same time, while that 6 inches is talked of, you can not tell a difference of 3 feet there. On the other hand, this same formula applied to the American side will lower the water about 3 inches clear across the thousand feet of the American Falls.

Our proposal, I think, is important because, among other things, it is the idea that it will put more water over the American Falls than ever went there before, and, as I understand the Treaty of Ghent, we are entitled to half the water, and that the boundary line is not a fixed quantity. We propose to put instead of 27,000 second-feet of water that comes there now 40,000 second-feet of water, and we propose to do that without the introduction into the bed of the river of any artificial works of any kind whatsoever. I undertake to say that our friends who are so anxious about the scenic beauty of this business would be offended if we had to get the water into the American channel by the use of dams or things of that sort. We propose to do it by the lowering of the water about 3 feet above the entrance at Goat Island, something that will never be seen, and it will make the American Falls handsomer than ever before.

Mr. ALEXANDER. You said that now there were about 27,000 cubic second-feet going over the American Falls?

Mr. COOPER. Yes, sir.

Mr. ALEXANDER. And you propose to make about 40,000 cubic feet per second go over the American Falls?

Mr. COOPER. Yes. After what we take out what we propose to take out and after everybody else has taken out what they have the right to take out. And that, mind you, to be done without any expense to the Government or without interfering in any way with any vested rights on either side of the river. That statement is a fact practical in all of its bearings, and it is not anything that is brought in here before this committee with the idea that it is just to be stated now and not further discussed.

Mr. RANDELL. How are you going to do it?

Mr. COOPER. By building an artificial cofferdam out there in the river and then taking it out.

The CHAIRMAN. For how long a distance would you have to take it out and for what width?

Mr. COOPER. As near as I can get at the data, we would have to take out about 500 feet of the length of the river, up and down the stream, and about 700 feet wide across the river at Goat Island?

Mr. DAVIDSON. Why do you do that?

Mr. COOPER. That is to yield to the public demand that the scenic beauty of the Falls shall not be destroyed.

Mr. DAVIDSON. Then, omitting to do that, you concede that the diverting of the water would destroy the scenic beauty of the Falls?

Mr. COOPER. I admit it to this extent, that theoretically it would reduce the level of the water 3 inches; but in order that we might have the thing handsomer than before we will go to this further expense, and increase the amount of water——

Mr. DAVIDSON. How much will it cost you?

Mr. COOPER. I think it will cost about \$100,000.

Mr. DAVIDSON. And you are willing to donate \$100,000 in order that the scenic beauty may be increased?

Mr. COOPER. We do that because we concede that this committee is rightfully impressed that there should be no possibility of the destruction of the beauty of Niagara Falls.

The CHAIRMAN. What is the depth of the Horseshoe Falls and what is the depth on the American side, respectively?

Mr. COOPER. The average depth on the Horseshoe side is assumed to be somewhere in the neighborhood of $8\frac{1}{2}$ feet.

The CHAIRMAN. And on the American side?

Mr. COOPER. On the American side 3 feet 9 inches to 4 feet.

Mr. ALEXANDER. What is the depth of water at the point where it goes over the precipice?

Mr. COOPER. That is what I am talking about now.

Mr. ALEXANDER. That is, 3 feet on the American side?

Mr. COOPER. Three feet and a half to $4\frac{1}{2}$ feet on the American side; and from 8 feet to 9 or 10 feet, according as the wind blows, on the Horseshoe side.

Mr. ALEXANDER. You say that all the water that is taken out now and proposed to be taken out by the works when they are completed will not reduce that water, which is 3 feet in depth, more than 3 inches?

Mr. COOPER. More than 3 inches; that is a fact capable of absolute demonstration.

Mr. JONES. Then how much water do you think could be diverted from the Niagara River without interfering with the scenic beauty of Niagara Falls?

Mr. COOPER. Without the doing of any further work, you mean?

Mr. JONES. Yes; under the present conditions?

Mr. COOPER. Well, I should say that under ordinary conditions an engineer would not be able to discover that business unless 40 or 50 per cent was taken out. That seems to you, gentlemen, like an unreasonable statement, as it does to everybody at first, but it is a fact all the same. I would like to say in this connection, about the measurement of water, that our suggestion is we may be allowed to take out about 8 per cent of the water of the Niagara River. The reports and examinations by expert engineers in the United States Engineering Department, where the same engineer will go out and measure the same stream the same day, twice in the same afternoon, show that the same man will get a bigger variation in his quantities than 8 per cent right along. And in this connection I would say that I have been at this business for twenty years. It is not a question that ever deals with these little percentages.

There is one other point——

The CHAIRMAN. Before you leave the point you are on. You state that from 40 to 50 per cent could be diverted from the flow over the falls without diminishing the scenic beauty of the Falls?

Mr. COOPER. Yes, sir.

The CHAIRMAN. We would like to hear from you in support of that idea.

Mr. COOPER. I simply say this: That with all the water running there now, a difference of 3 feet on the crest of the falls, which amounts to over 30 per cent, is not determinable by the human eye.

Mr. DAVIDSON. That is on the Horseshoe side?

Mr. COOPER. Yes, sir.

Mr. DAVIDSON. But with a depth of only 3 or 4 feet on the American, what would you say?

Mr. COOPER. It decreases in the same proportion; I don't think a man can tell it.

The CHAIRMAN. What portion of the depth would be taken off by 40 or 50 per cent of the water being diverted?

Mr. COOPER. It would not decrease by the same percentage. It would be about 30 per cent, I think, of the depth with 40 per cent of the water.

The CHAIRMAN. That is, it would be cut off from 3 feet to 2 feet?

Mr. COOPER. From $4\frac{1}{2}$ feet to $3\frac{1}{2}$ feet, or something like that.

Mr. LAWRENCE. How much water flows over on the American side?

Mr. COOPER. Normally about 27,000 cubic feet per second.

Mr. DAVIDSON. How much at its lowest stage?

Mr. COOPER. You will have to modify that question, because it has been dry on the American side. In 1856 it was dry there. Is that what you mean?

Mr. DAVIDSON. Well that is the extreme, but there are times when the Lakes are lower than other times, in a generally dry season. That is what I would like to know.

Mr. COOPER. You mean how much lower than that it gets?

Mr. DAVIDSON. Yes.

Mr. COOPER. I would not want to say definitely, but I should say it might get down to 20,000 second-feet.

Mr. DAVIDSON. That would be how many feet or inches on the crest of the American Fall?

Mr. COOPER. I think somewhere in the neighborhood of 3 feet 3 inches. I can not state that definitely.

The CHAIRMAN. There are statements in published books that give the depth over the Falls as much greater than you have given it. I am informed that Mr. Porter in his Handbook of Niagara Falls said that a boat 20 feet went over the Horseshoe.

Mr. COOPER. Yes, and a boat drawing 50 feet would go over the Horseshoe.

The CHAIRMAN. He gave the impression that there was that much water there, at least 20 feet.

Mr. COOPER. I don't think he knows what he is talking about.

The CHAIRMAN. It is not known how much water there is in feet.

Mr. COOPER. I do not think so, and I don't think anyone will ever know.

The CHAIRMAN. Is there any way of measuring it?

Mr. COOPER. No, sir. It might sound like an unfortunate admission, but the only the way we can measure the water as to its depth over that crest is by the color, and in locating a tunnel that cost us \$1,000,000 I located the end of it by the color of the water. It looked

a darker green. That is the extent of our technical knowledge on that question.

Mr. ALEXANDER. May I call your attention to the report of the International Waterways Commission. I read from page 9, section 26:

The total quantity of water to be taken from the river by works now authorized is 60,900 cubic feet per second. Of this amount, 26,700 cubic feet has to be taken on the American side. The quantity that now passes over the American Falls is about 27,800 cubic feet.

Now they say—

That this will, in general, have an injurious effect upon the Falls seems self-evident.

In other words, according to this report, you propose to take 26,700 cubic feet of water that now passes over the American side, and it seems there are only 27,800 cubic feet that pass altogether.

The CHAIRMAN. No. He said 87 per cent of that which they would divert would come from the Canadian side and only 13 per cent from the American side.

Mr. ALEXANDER. This report says:

Of this amount, 26,700 cubic feet are to be taken on the American side.

Now, you say that 27,800 cubic feet a second is all there is that goes over on the American side.

Mr. COOPER. Yes; but you understand only 13 per cent of the take-out comes from the American side, which would be in the neighborhood of 2,700 instead of 27,000, and the other 87 per cent is the subtraction by natural law of the flow of water from the Canadian side. Do I make myself plain?

Mr. ALEXANDER. Yes; but I do not understand this report.

Mr. COOPER. Your engineers will bear me out in this statement.

The CHAIRMAN. The report is clear enough; it says of this amount 27,600 feet is to be taken from the American side.

Mr. ALEXANDER. The report indicated that it was to take on the American side 26,700, and that there were only 27,800 feet going over on the American side, and then they said that this will in general have an injurious effect seems self-evident. I should think it would.

Mr. COOPER. Yes; of course.

Mr. ALEXANDER. Your explanation of that is that of this 27,600 feet to be taken on the American side, as a matter of fact, only about one-fifth of it goes over the American side.

Mr. COOPER. About one-eighth of it.

Mr. ALEXANDER. About one-eighth comes from American waters.

Mr. COOPER. Yes, sir.

Mr. ALEXANDER. That is on the American side?

Mr. COOPER. Yes.

The CHAIRMAN. One minute. In order that you may understand the report fully, it is stated in that paragraph at the end that if all that taken on the American side should affect the American fall alone it would probably leave it dry, but it seems probable that only a part of this diversion would be at the expense of the American fall.

Mr. COOPER. You see they are not definite in that. We have gone into it with great care, and we have determined those proportions in such a way that we believe your engineers will accept our conclusion.

I want to conclude by saying that there is no statement we have

made but what we are anxious to go on before your engineers who are advising you on the matter.

Mr. BISHOP. What is the depth you propose to sink to the bottom of the river?

Mr. COOPER. About $3\frac{1}{2}$ feet. That would depend upon actual surveys.

I wonder if everybody understands what that means. Let me make a little sketch. I wonder if you can see this. That black line represents in a general way the slope of the Niagara River [exhibiting a pencil drawing to the committee]. The channel that supplies the American side is here. This top line represents more or less the depth of water over the slope. As we reduce the quantity of water the surface goes down. Now, I say we can go up to the top here and take off a wedge-shaped piece about 4 feet deep and about 700 feet long, based on data supplied by the United States Government engineers, and we can put 40,000 cubic second feet of water down there instead of what has been going there, and we will do that without the introduction of anything offensive in the water. It is simple and practicable.

The CHAIRMAN. What do you say about the right of this Government or any agency of this Government doing that without the consent of those on the other side of the river?

Mr. COOPER. I have had a good deal of talk with lawyers on the other side, and we have thrashed this out in Canada for three years, and the consensus of opinion over there is that as long as we do not do anything to take away from the Canadians their half of the water (which they propose to use, you will find, if you take pains to investigate) they have not anything to say. I have thought that at this particular time—when there is so much excitement in Canada upon the question of municipal ownership and great developments, and our friend Lord Kelvin is quoted every fifteen minutes—that it would be a pretty good time for the United States Government to negotiate some sort of a treaty about this, and this question here could come up and be settled, if there is any legal side to it; I don't know whether there is or not. Our lawyers have said that there is not any.

Mr. LAWRENCE. You are familiar with the second section of this bill, which says that the Secretary of War is hereby authorized to grant revocable permits for the diversion of water from said Niagara River for the creation of power, but only to individuals, companies, or corporations which are now actually producing power from said water, and to them only to the amount now actually in use by such individuals, companies, or corporations. Your contention is that that is too stringent?

Mr. COOPER. Absolutely. It is said in this bill somewhere, I believe, that the proposal is to limit the amount of power that shall come in from Canada to the amount now coming in, and one of the chief engineers told me the other day that they were going to build a huge rheostat, and that they would soon be putting all they wanted over.

Mr. LAWRENCE. If we were going to pass a statute to limit the amount that could be diverted, you think that 40 per cent would not destroy the scenic beauty of the Falls?

Mr. COOPER. Yes; and if you will appoint a subcommittee to take testimony at Niagara Falls that committee will be able to see the

truth of everything I have stated in that connection. You can not see it very well here, but a committee that would go on there and would take testimony could see it.

Mr. DAVIDSON. You said that the Canadians proposed to use their half of the water?

Mr. COOPER. Yes; they are proposing to use it—

Mr. DAVIDSON. When they do that what becomes of your proposition to reach out and get from them current to add what is going over the American Falls?

Mr. COOPER. We can keep going up farther with this project that I have described until we do take care of it.

Mr. DAVIDSON. Your contention against theirs would ultimately permit all of us to walk across the crest of the Falls.

Mr. COOPER. No; my contention would be that it would continually preserve—if the Canadians took half of the water and we took 40 per cent of the balance, then you would have something that would not allow the maintenance of the beauty of the Falls. I am not going to be unreasonable in these statements—

The CHAIRMAN. You said if a subcommittee were to be appointed and they should go there in the summer—although we hope that something will be done with this before then—that you could prove to them that taking 40 or 50 per cent did not diminish the scenic beauty of the Falls. Could you not now, by a statement of a few facts, show this committee how that amount can be taken without diminishing the scenic beauty?

Mr. COOPER. The first fact is that the taking out of this water—I haven't the figures on the basis of 40 per cent, but I have them on the basis of what is before you. That is, that granting all that you have allotted and our request to be limited to that amount of water, that the reduction in the depth of water over the Horseshoe Falls would be 6 inches and on the American side 3 inches.

Mr. LAWRENCE. How do you arrive at that conclusion; could you explain it so the layman could arrive at that conclusion, that such a diverting of water would only reduce the depth 3 inches on the American side and 6 inches on the Canadian side—how do you reach that conclusion?

Mr. COOPER. I think I can tell you.

Mr. LAWRENCE. I would like to hear that.

Mr. COOPER. You know that the most reliable way of measuring water is by measuring it according to the depth of the water that flows on top of a dam, do you not? You have heard of the weir formula originated by Francis? It has been modified, but it is still the Francis formula that is confidently and reliably in use. We know the quantity of water generally that flows down the Niagara River as a whole. We know that the proportions are about 13 per cent and 87 per cent of division of the water. The next thing is that the length of the crest on the American side is approximately 1,000 feet. Now, speaking about the American side, if we know what the quantity of water is, 13 per cent, or 27,800 feet, distributed over a crest on a general level, which is a fact at Niagara Falls, 1,000 feet long, the water, by the application of the formula, will have to be 4 feet in order to get by that crest. Now, if that is not plain I do not want to go any further—

The CHAIRMAN. That is, when you have the velocity.

Mr. COOPER. Well, I have omitted the question of velocity from

this case, although that would make the argument stronger from my point of view. In the problem of the water coming along here and falling over, as a dam, we have a dam a thousand feet and we have 27,800 cubic feet flowing over, that much going over the crest of that dam, the water has to be 4 feet deep, or in that neighborhood. The same method of analysis applies to the Horseshoe Falls. Now, then, in order to find out how we get the 3 inches and the 6 inches, you would take out these quantities and apply the same formula and you would get those figures, 3 inches and 6 inches, and those are the reliable formulæ that are in use to-day, and they are not disputed anywhere.

MR. LAWRENCE. So that if the depth is lowered 6 inches you do not arrive at that from the color of the water.

MR. COOPER. No; we judge which is the deepest part by the color.

One other thing upon the question of navigation, which, as a layman, I think is a very important one. And I do not take any stock in some of the arguments that have been made about navigation. I think it is a very important thing, and I think navigation is just as important to the power business as the power business is to navigation. I think they go together. It is a fact that the subtraction of the 27,800 feet which we petition for at Cayuga Island is not a measurable quantity and will not affect navigation in any sense, and the Government advisers, its engineers, will tell you the same thing, I am very sure.

In conclusion—I seem to have a good many conclusions, but there is only one other I think—we have set forth these facts generally in this document [exhibiting document], and it seems to me that when you consider that the granting of this petition, which provides for the creation of 450,000 horsepower, can be done without any interference to the navigation, can be done reliably and knowingly beforehand, that it would not interfere with the beauty of Niagara Falls, that those things can be secured and known beforehand, that the same time it does those things that it will save to the coal supply of America 3,000,000 tons a year, it is not possible, it seems to me, that any committee will overlook the actual facts before you to-day, facts that can be proven beyond all question; there is not a single weakling in any statement we make.

MR. ELLIS. Have you figured out that coal saving in your statement here?

MR. COOPER. Yes, sir.

MR. RANDELL. What limits do the Canadians propose to put upon the water they take?

MR. COOPER. They say without limit.

MR. RANDELL. Then, if we put a limit, you say they are going to go on?

MR. COOPER. I say now is the time with the government in the saddle over there on the power business and a great deal of anticorporation talk and that sort of thing, it is a time when I believe a reasonable treaty could be made and make a good clean sheet of the thing; but unless it is approached in some such way as that—I happen to know a good many of the members in charge of this business in Canada from association with them for some years, and I believe something positive could be done in that direction.

MR. BURGESS. Your idea is, then, that we ought to have a treaty first and legislation afterwards rather than legislation first and a treaty afterwards?

Mr. COOPER. Yes, I think there is a big element over there that will just laugh in their sleeve. They haven't got over the Alaskan boundary decision yet.

The CHAIRMAN. You were interrupted when you were explaining how this 40 or 50 per cent could be withdrawn without destroying the scenic beauty. Is there anything more you desire to say on that subject?

Mr. COOPER. I mean to say this: That the people who want the scenic beauty—most of them a very estimable portion of our population—don't know anything about the quantity of water, and I say that as to the quantity of water, whether it is 40 per cent or 30 per cent, it can not be told by an engineer by the looks of it; and if that is so, what is our school man going to be able to tell about it? I am reminded of a German who went there and looked at the American Falls, and then went and looked at the Horseshoe Falls, and his only remark in looking at the Horseshoe Falls was, "What a wonderful place to sponge pants!" I say we can prove all those things—

The CHAIRMAN. That is a very excellent bit of pleasantry, but that does not answer the question, which is a scientific one and to which we would like to receive a scientific answer—

Mr. COOPER. All right, sir; I beg your pardon if I did not understand the question.

The CHAIRMAN. How can you withdraw 40 or 50 per cent of the water and not destroy the scenic beauty of the Falls?

Mr. COOPER. The length of the crest would be practically the same in each case, and you can not tell anything about the depth of the crest inside of those limits by looking at the water flowing over it. That is the specific answer to your question.

The CHAIRMAN. That is, the width of the Falls would be the same?

Mr. COOPER. Practically the same.

The CHAIRMAN. That is, you eliminate the idea of the volume of the flow having anything to do with the scenic beauty or grandeur of the Falls?

Mr. COOPER. Yes, sir; I think within those limits the volume is not susceptible to the eye or ear.

Mr. BURGESS. You think, in other words, that if the water is 3 feet deep, it would look as pretty and sound as well as if it were 6 feet deep?

Mr. COOPER. I do not think it would be discernible whether it was 3 feet deep or 4 feet deep.

Mr. BEDE. What would be the effect on the Canadian development if we prohibited importation of power; have they demand enough in Canada to take that power?

Mr. COOPER. No, sir?

Mr. BURGESS. Our folks would go over there to utilize the power?

Mr. COOPER. Yes, sir; that is what they would do, and that is what they are doing already. You drive your American industries out of America.

There is one statement in here that you ought to read, and that is this: That this little 3 inches of power, based on the United States census, will provide the groundwork of an annual manufacturing product of \$540,000,000, which is two and one-half times the total value of the farm product of the State of New York. All we ask to get that is 3 inches over the crest of those falls.

Mr. SPARKMAN. What engineering method would we adopt to prevent the exhaustion of water on this side if the Canadians would take all the water they are entitled to take?

Mr. COOPER. What engineering method would we adopt to maintain our American Falls?

Mr. SPARKMAN. Yes.

Mr. COOPER. There would only be one method and that is to keep on sinking the upper end of this slope, and if we had to go to great depth, of course the expense would be very great.

Mr. SPARKMAN. I understand you to say that they proposed to take it all.

Mr. COOPER. That is the proposal of certain people in Canada.

Mr. ELLIS. How far could you go before you reduced the level of Lake Erie?

Mr. COOPER. Lake Erie is 22 miles back, and I do not think it would be possible to affect the level of Lake Erie, because of the slope of the river from that lake to the falls?

Mr. DAVIDSON. I wanted to ask you, in connection with the chairman's question as to 40 per cent being taken, how you arrive at that 40 per cent?

Mr. COOPER. Well, that is a mere theoretical calculation based upon our observations, with the action of the wind, and living on the banks of the river and seeing it day after day.

Mr. DAVIDSON. I was not here at the beginning of the meeting, but has there been anything given to show how much it is proposed now to actually take away?

Mr. COOPER. Yes; it is all given; we only ask to have as much as the Canadians have already got for power purposes.

The CHAIRMAN. The exact amount you ask is what?

Mr. COOPER. Seventeen thousand nine hundred cubic feet per second.

Mr. ALEXANDER. What is your company?

Mr. COOPER. The Niagara County Irrigation and Water Supply Company.

Mr. DAVIDSON. I suppose all other power companies interested would want their share?

Mr. COOPER. Well, I think they all got their share.

Mr. DAVIDSON. This company interested here to-day is only one of several?

Mr. COOPER. That is correct.

Mr. DAVIDSON. So our determination of this can not be based upon your argument as to the effect of 3 or 6 inches which this particular company would have upon the scenic beauty, but we must consider the effect on the scenic beauty of the amount that would be taken by all the companies.

Mr. COOPER. But all the other companies on the American side are getting their water out now.

Mr. DAVIDSON. Yours is the only company that is not doing so?

Mr. COOPER. Yes, sir.

The CHAIRMAN. Your argument is based on the idea that these other companies—the Niagara Falls Power Company and the Niagara Hydraulic Power and Manufacturing Company—shall not take any more water than they are now taking from the river?

Mr. COOPER. No; that is not quite true, I believe. It is true with reference to the Niagara Falls Power Company, I imagine, but I do

not think it is true with reference to Mr. Shelcroft's plant—the other plant.

The CHAIRMAN. How much more would you say could be withdrawn by those companies? You say you are not counting on any more being withdrawn by the Niagara Falls Power Company?

Mr. COOPER. Yes; and if you will excuse me, the total amount of 8,000—or whatever it is, being taken out by Mr. Shelcroft's company—not now being taken, but proposed to be taken—

The CHAIRMAN. Nine thousand five hundred is the report of the Commission.

Mr. COOPER. Well, I base it on the report of the Commission.

The CHAIRMAN. Are you counting on any more being taken out by that company?

Mr. COOPER. Yes, the full 9,500 mentioned in the report.

The CHAIRMAN. But you are counting on a limit of the withdrawal of power by the Niagara Hydraulic Power and Manufacturing Company to 9,500 cubic feet, and to the other company of 8,600 feet.

Mr. COOPER. Yes.

The CHAIRMAN. And so it will not injure the Falls?

Mr. COOPER. Yes.

The CHAIRMAN. You are using that as your basis?

Mr. COOPER. Yes, sir.

Mr. ALEXANDER. Are you using that, the Niagara Falls Power Company, 8,600 feet, or are you using it as shown by the International Waterways Commission at 17,200 feet, which they have contracted for?

Mr. COOPER. I am taking the recommendations of the Deep Waterways Commission on page 12 of that report.

The CHAIRMAN. So according to your idea your 17,900 would be added to those estimates given on page 12?

Mr. COOPER. Yes, sir.

The CHAIRMAN. And that would be the end of permits on the American side?

Mr. COOPER. Yes, sir. And I think you could make a contract with Canada to stop them over there.

Mr. DAVIDSON. On page 12 the Niagara Falls Power Company is restricted to 8,600 feet, while they are authorized to take 17,200.

Mr. COOPER. Yes.

Mr. DAVIDSON. What are you authorized to say about that?

Mr. COOPER. I am advised by our lawyers that there is no limit, but I believe there should be a limit.

Mr. DAVIDSON. What do you want?

Mr. COOPER. Seventeen thousand nine hundred, as much as the difference as set out on page 12, and what the Canadians have already had.

Mr. DAVIDSON. Then you want practically as much as both companies on the American side put together.

Mr. COOPER. Yes, sir; and for the great reason that we can make practically twice as much use of the water for each cubic foot as they can.

The CHAIRMAN. That is, you have a much greater area?

Mr. COOPER. We have practically 300 feet, and theirs will average probably about 150, and if there are to be any diversions at all it seems to me where you can make the greatest use of each cubic foot is the place you should look for it to be diverted.

MR. DAVIDSON. If the amount authorized for the Niagara Falls Power Company is to be cut down one-half, then what do you say to lowering the figures to your company; what ground would you meet with them upon?

MR. COOPER. I would meet with them on two grounds. In the first place, that we make a better use of the water, and therefore, you do the general public more good, we do the commerce more good—twice as much by the use of water; and the next proposition is this: That if the commerce of the United States is ever to achieve the place that we suppose it is going to, some day there will be a deep waterway between those two lakes, and we propose in this article we give you to construct half of that and give it to this Government for nothing, amounting to over \$2,000,000.

MR. DAVIDSON. And your canal could be used for navigation purposes?

MR. COOPER. Yes.

MR. DAVIDSON. And you would consent to that without cost?

MR. COOPER. Without cost to this Government; yes. And when these things are estimated and put all in the balance of general public utility and compared with that 3 inches, I do not believe this committee will overlook what we ask for.

THE CHAIRMAN. Of course, Mr. Cooper, that is a very attractive proposition for this committee, which is occupied primarily with navigation, but we have to meet the situation as it now is. Those other companies have their works completed; they are furnishing power, and a considerable development of industry has grown up in dependence upon that power.

MR. COOPER. Yes.

THE CHAIRMAN. Now, you have not commenced at all, except this preliminary work?

MR. COOPER. Yes, sir.

THE CHAIRMAN. The purchase of some land and an expenditure of some \$100,000. You must recognize that we have to take into account all those facts.

MR. COOPER. We do recognize that.

THE CHAIRMAN. One other point, returning to the matter of the diversion of this amount—40 or 50 per cent, or whatever it may be—can anyone tell whether the flow will be limited to a portion of that crest rather than occupy the whole of it; can anyone tell that now? Suppose you draw out a certain proportion of the water, do you understand the shape of that crest and the flow of water over it well enough to make any forecast of what will be the result of withdrawing 30 or 40 or 50 per cent of the flow of the Niagara River?

MR. COOPER. Yes; I think so. I have been for many years at this kind of business, and I am conscientious in what I tell you—that that is the sensible way of deciding this thing, and what I have told you is the truth.

THE CHAIRMAN. It is your deliberate thought that 40 per cent could be withdrawn and water would flow over the whole crest?

MR. COOPER. Yes.

THE CHAIRMAN. Would the company you represent accept a condition that if the flow should be materially diminished, so as to injure Niagara Falls as a scenic spectacle, or in case the water should not go over the whole crest, their rights might lapse?

Mr. COOPER. We would make it, I think. I would say, as the engineer of this company, that unless we can produce these results that I have said we can produce, we would not have any title to the property; that the water could be taken away.

The CHAIRMAN. That is, that the water must flow over the whole crest?

Mr. COOPER. Yes, sir.

The CHAIRMAN. The Horseshoe Falls and the American side?

Mr. COOPER. Yes.

The CHAIRMAN. As to the volume, what would you say about that? Many seem to prize the volume as much as the width of the cataract?

Mr. COOPER. Well, the only answer I could make to that is a similar answer to one I made to President Cassatt of the Pennsylvania Railroad the other day in an argument upon the subject of another river. I think the volume will not sound quite as large, but the point is that all great improvements are attended by some sacrifice. The Morse telegraph took the place of many dispatch lines; the railroad took the place of many stage lines; and I think there may be a little diminution of sound if you got down to 40 per cent, but for practicable purposes you can not tell the difference.

There is only one thing further in reference to these people having 17,200 feet of water. As a rough general statement, if you give them all that and gave us what we ask for it would probably make $4\frac{1}{4}$ or $4\frac{1}{2}$ difference, and I submit that that difference is absolutely negligible when you come to see all these other benefits. That is the point.

Mr. DAVIDSON. Do you know the crest as to the Horseshoe Falls—as to whether it is practically a straight line?

Mr. COOPER. No; it is very irregular, and it is going upstream about 3 or 4 feet a year.

Mr. DAVIDSON. Deeper in the center?

Mr. COOPER. Yes; it is converging in a V-shape.

Mr. SPARKMAN. It is breaking off in the center?

Mr. COOPER. Yes. If we wanted to go to some further extreme we could say that a diminution of the water over Horseshoe Falls is a direction on the side of safety for a continuation of scenic beauty, because the more water that goes over the faster it washes away. Did you know it was going over 4 feet a year?

Mr. DAVIDSON. I wanted to ask about the American Falls.

Mr. COOPER. The American Falls doesn't have any of this subwater underneath that washes away the slate and the lower strata. One-half of this 160 feet is slate. The top half is limestone. The slate by the action of the water and the weather eats away and leaves a shelf overhanging, and as that shelf gets too heavy it breaks off. We had the pleasure of seeing what that looked like in behind there.

Mr. DAVIDSON. I have seen what the American Falls looked like behind but not the other.

Mr. RANDELL. Will all these works you propose to put in cause any greater outflow of water from Lake Erie?

Mr. COOPER. Not at all; that is regulated by the flow into Lake Erie.

Mr. RANDELL. Then why does this commission mix up the Chicago Drainage Canal with this proposition?

Mr. COOPER. Because they take water out of Lake Michigan and reduce the amount of water by diverting it into the Mississippi Valley.

The CHAIRMAN. That is, the Chicago Drainage Canal does lower the level of the lakes?

Mr. COOPER. It does; but I think it is inappreciable—these quantities talked about.

Mr. RANDELL. Then the only problem we want to consider as to the affecting of the general level of the lakes is the Chicago Drainage Canal?

Mr. COOPER. Yes.

Mr. RANDELL. That is the only one. I thought that was so, but I wanted to be confirmed in that opinion.

Mr. COOPER. That is correct.

Mr. BURGESS. And you think that is inappreciable?

Mr. COOPER. I do not think that is a measurable quantity. The fact of the matter is that the level of the Lakes has been increasing for three or four years, and nobody knows why that is going on. The drainage does not suggest it to the extent that it is increasing.

Mr. BISHOP. Do you know the annual rainfall for the last few years?

Mr. COOPER. That may have increased, but it is not in the same proportion. Another interesting thing in this connection is that the whole Chicago district is going down geologically and this region is rising, and in about three thousand years it will all go by the Mississippi Valley.

STATEMENT OF MR. M. A. VIELE, ENGINEER, NIAGARA COUNTY IRRIGATION AND WATER SUPPLY COMPANY.

Mr. VIELE. Mr. Chairman and gentlemen of the committee, while I am connected with this company which you have so kindly given a hearing this morning, I am interested in this problem along somewhat broader lines. I am in hopes that your committee will see fit to modify this bill so that you will not endanger the vested rights of this company or any of the companies which are operating or have the right to operate on the American side at Niagara Falls, or even on the other side as far as they relate to our own industries.

Several of the companies on the American side have certain rights. They have had certain plans for their future development. They have set aside securities based on their entire development, and I think they should be given every consideration. This company has only been delayed in proceeding with this work, owing to the fact that we wished to have certain questions definitely determined by the courts of New York before going ahead. That determination has only been made within the last sixty days. We were about to proceed when the President's message to Congress was sent in, and then the threatened action by your committee cast an obstacle in our path, and while we hope it would not ultimately prevent our going ahead with the enterprise, it tends to intimidate capitalists who would interest themselves in the enterprise.

I feel that the entire industrial development of the State of New York and that portion of our country depends upon the judicious legislation and the judicious regulation of the use of the waters of the Niagara River. We are in a position at Niagara Falls—and by "we" I speak in a broader sense than relating to this company—we are in a position there to allow these companies now operating to be developed to their legitimate limits; we are in a position to allow this enterprise

to be developed to its legitimate limit without in any way affecting the Falls so that they will be despoiled or their beauty ruined.

The only way in which an individual looking at those Falls has any idea of them is to see the crest, hear the water that goes over. You can hear the sound, but you can not see volume; you can only see surface.

Going back to our own enterprise, we feel that we are going to benefit the commerce of this country; we are going to increase the development of that entire portion of the country. This canal which we will build and have to build for our power purposes is suitable through one-half its length for navigation. Along the banks of that canal we hope to build up industries; we hope that canal will practically be a harbor for vessels at the lower end of the Niagara River where they could seek refuge. They would be absolutely safe there, as they would not be out in the river proper. The current would only be about 2 feet a second, which is less than one-half the current of the Niagara River.

If this development alone is carried out to the extent we hope, we will develop 450,000 horsepower. That means a revenue of \$9,000,000 a year, at \$20 a horsepower. That would develop that entire section of the country; it would give manufactured products, as Mr. Cooper said, of \$540,000,000 a year. We expect to transmit the power out through the West as far as Cleveland, going through all that section of country, and helping to develop it and build up their manufactures by giving them an opportunity to go into enterprises which to-day are not commercially profitable, which to-day are not at all attractive, because they can not get the cheap power which can develop them.

There is one very interesting feature which you gentlemen should bear in mind, and that is that at Niagara Falls to-day a large portion of the power is used for the purposes which were started and which were not proposed, which were not even known at the time the Niagara Falls Company started their development. I feel that it would be to the interests of everyone in the western part of our State if this bill could be amended so as not to injure the vested rights of all the companies which now have the right to operate on the American side or to transmit power into this country. I feel that the sentiment of a large part of the people in Niagara Falls and in Buffalo is against any such restrictions. I think that you gentlemen will find, now that this matter has gone so far, that the people are considering it seriously; that you will have as many petitions, and that you will have as many requests to prevent this hasty legislation as you have had in the past to pass it.

Up to the present time the business men of the country, the men who are interested in the power development, have not felt that this thing was serious; they have thought that it was one of those ideas—sentiments—that overwhelm us once in a while and then pass on. Until your committee took this up we did not consider that this thing had gone so far. Now we realize, almost too late, that the great manufacturing and commercial supremacy of our State and our part of the country depends on our ability to utilize the resources which the Lord has placed at our disposal for the benefit of mankind.

Mr. DAVIDSON. What are the dimensions of your canal where it runs out from the intake and the turn?

Mr. VIELE. The dimensions that would ordinarily limit the size of

such a canal would be those which would give the best channel, the best flow of water for power purposes, but the amount of water which we have to take is so large and the speed at which we wish to take it is so low that the section will be larger than it would be ordinarily; and it will probably be 200 feet wide and 25 to 30 feet deep.

Mr. DAVIDSON. Does your charter make any provision for payment to the State?

Mr. VIELE. No; our charter gives us a right to the unlimited use of the water of Niagara River. We do not feel that that is reasonable; we are willing to bind ourselves not to divert over a certain amount of water, which shall be equitably determined. We do not feel that we should have the right to divert any more water from the Niagara River than the most favored company having rights at Niagara Falls.

Mr. DAVIDSON. Then, if the power company's right was restricted to 8,000, as recommended by the commission, would you be satisfied with a like restriction?

Mr. VIELE. No, sir. I don't think you ought to restrict them to that. I think that they have every reason to feel that they should have more water than that.

Mr. DAVIDSON. Then you think they should have their full limit of 17,000 feet?

Mr. VIELE. I do not remember the exact limit, but I think that they and ourselves and other companies should have their vested rights protected. I do not feel that our vested rights should be fixed or that we should be deprived of them. I feel, however, that a reasonable limit should be placed on them.

The CHAIRMAN. There are several gentlemen here who represent other interests, I understand, who desire to be heard.

Mr. ELLIS. On this same proposition?

The CHAIRMAN. Well, with regard to the diversion of water there.

(Thereupon, at 12.45 the committee adjourned until to-morrow, Tuesday, April 17, 1906, at 10.30 o'clock a. m.)

COMMITTEE ON RIVERS AND HARBORS,
Tuesday, April 17, 1906.

STATEMENT OF FRANK A. DUDLEY, ESQ., COUNSEL, NIAGARA
FALLS ELECTRICAL TRANSMISSION COMPANY.

Mr. DUDLEY. Mr. Chairman and gentlemen of the committee, I appear on behalf of the Niagara Falls Electrical Transmission Company, which is the distributing company for electrical development, and it owns one of the power plants on the Canadian side of the river. I have also been requested to appear for several municipalities in western New York, namely, the villages of La Salle, Albion, and other localities. I wish to read in that connection a letter which I have just received from the office of the mayor of Albion.

MAYOR'S OFFICE,
Albion, April 14, 1906.

HON. FRANK A. DUDLEY,
Niagara Falls, N. Y.

DEAR SIR: Understanding that you expect to be present in Washington on Monday next at the hearing to be held on that day on the bill introduced by Congressman Burton relative to the production and use of electric power at Niagara Falls, we

beg to present to you our views on the subject, in order that you may bring them to the attention of the committee on the hearing.

We understand that the bill in question would in its present form prevent the importation of electric current into this country from Canada, and while we are heartily in favor of preserving the Falls we do not see why Canada should have the benefit of electrical development already in operation or authorized.

The company that furnishes light and power for this village, together with the villages of Middleport and Brockport, is controlled by the Electrical Development Company, of Ontario, or its allied company in the United States. This community has been counting on the time when power would be available from Niagara Falls. We understand also that both the Development Company and the Lockport and Ontario Company, which has a line just south of here, have expended considerable money for franchises and construction, and we believe that their vested rights and the promotion of industries in western New York demand that they be excepted from the provisions of any law curtailing the importation of electricity. Besides this, we are informed that the proposed trolley line from Buffalo to Rochester (the tracks of which are now laid in this village) has some arrangement for obtaining its power from the Electrical Development Company, and we are convinced that any curtailing of the ability of this company to furnish power would deprive Albion and this whole section of the country of a trolley road, which has been sought after and hoped for by all the citizens between Buffalo and Rochester.

We therefore earnestly hope that you will use your best endeavors to see that the interests of this community are protected in this matter, which we deem of the utmost importance.

PERRY W. CHURCH,
President of the Village of Albion.

SANFORD T. CHURCH,
President of the Board of Education.

The CHAIRMAN. Were these rights obtained through the Niagara, Lockport and Ontario Power Company?

Mr. DUDLEY. They were obtained through the Electrical Transmission Company, which I represent. I have a map here showing the villages on the Niagara River which are supplied and which are to be supplied with power.

The CHAIRMAN. Is there any one here representing the Niagara, Lockport and Ontario Power Company?

Mr. DUDLEY. General Greene does. His interests are similar to mine.

The CHAIRMAN. Is it not true that the New York house of representatives unanimously passed a bill repealing the charter of that company?

Mr. DUDLEY. I do not know about that. I think not the charter of that company. They repealed several charters, but not that one.

I have been requested by the municipality of La Salle to read this letter:

HON. THEODORE E. BURTON, *Chairman,*

AND THE MEMBERS OF THE RIVER AND HARBOR COMMITTEE,

House of Representatives, Washington, D. C.

GENTLEMEN: The municipality of La Salle, by its constituted authorities, does hereby respectfully protest against the passage of the House bill, "For the control and regulation of the waters of the Niagara River, for the preservation of Niagara Falls, and for other purposes," in the form in which it now is.

The municipality of La Salle and its principal manufacturing interests are and will be dependent for electrical current on power generated at Niagara Falls, Ontario, on the Canadian side of the Niagara River.

Large sums of money have been expended by American companies in the building of transmission lines and transforming stations, having for the purpose the distribution of electrical power to municipalities, railroads, and manufacturers in the State of New York, and manufacturing plants and transportation companies have and are now being constructed to be operated by power generated by the three Canadian power companies now having partially-completed plants. Many millions of dollars

have been invested in these enterprises, and the preventing of electrical power from the companies in question being sent to the United States would result in irreparable injury and destruction to the manufacturing and commercial interests of western New York.

With a full knowledge of the volume and flow of the waters of the Niagara River, we respectfully state that the water which will be used in the development of power by the two American power companies and the three Canadian power companies will not in any appreciable way lessen the flow of water over the American or Canadian Falls or injuriously affect the scenery of or in the vicinity of the Falls; that on the faith and credit of grants made many years ago by the constituted authorities, many millions of dollars have been spent in the development of the five power plants above referred to and the manufacturing and railroad interests, which have contributed largely to the prosperity and welfare of the State of New York.

We therefore respectfully ask that nothing will be done by your honorable body which will injure or destroy our vast manufacturing, transportation, and commercial interests, and that nothing will be done which will prevent the three Canadian power companies from bringing power to the United States, to the amount and under the restrictions of their respective charters.

VILLAGE OF LA SALLE,
By M. O. CORLEY, *President*.

STATE OF NEW YORK, *County of Niagara, ss:*

I, J. H. Schmeck, clerk of the village of La Salle, Niagara County, N. Y., do hereby certify that the foregoing petition and request was duly adopted at a meeting of the board of trustees of La Salle, held on the 14th day of April, 1906.

J. H. SCHMECK,
Clerk village of La Salle, N. Y.

Subscribed and sworn to before me this 14th day of April, 1906.

[SEAL.]

HARRY HIGHLAND.

The CHAIRMAN. How much power do those three companies have, according to the International Waterways Commission?

Mr. DUDLEY. Sixty-two thousand five hundred horsepower. The Ontario Company have developed 50 per cent of their right, and that is true as to the Canadian Power Company also.

Mr. HUMPHREY. What is the amount of your rights which have been developed?

Mr. DUDLEY. One hundred and twenty-five thousand horsepower. As to the Canadian and Niagara Power Company Mr. Lofus can speak.

Mr. LOFUS. Our plant at present is equipped for 110,000 horsepower, all importable.

The CHAIRMAN. How many cubic feet?

Mr. DUDLEY. It is stated in the report of the International Waterways Commission. I think it is in the neighborhood of 9,500 feet per second.

The CHAIRMAN. Do these villages which you represent desire that any restrictions be imposed upon the diversion of the waters of the Niagara River?

Mr. DUDLEY. That question has not yet come up. They do desire the preservation of the Falls.

Mr. CHAIRMAN. Of course if it is a feasible plan that you suggest, any proof that the diversion of a certain amount of water will not injure the Falls as a scenic spectacle would be valuable for us to hear. If every corporation that wants power must have what it desires then it will take a great amount of the water of the Falls.

Mr. DUDLEY. I think there is a limit which may be safely fixed as to the amount of water which may be used without any noticeable impairment to the scenery

Mr. LAWRENCE. I understood that you objected to importing power from the Canadian side. Would you suggest a limit of the amount of power that can be imported from the Canadian side; and if so, to what extent?

Mr. DUDLEY. The object is to restrict the further development of the power on the Canadian side. If made applicable to the future use of power, so far as we are concerned we have no objection.

Mr. LAWRENCE. The point is as to who will develop it.

Mr. DUDLEY. We have the rights to take care of 62,500 horsepower that is developed, and we are obliged to receive and sell it on the American side. I am president of the harbor commission of the city of Niagara Falls, which for many years has had charge of the Niagara River in that city, and is invested with authority from the State of New York, and a great deal of the information which I will give you has been obtained by me in that capacity, and to that extent I represent the city of Niagara Falls. I did not know until Friday that this matter would come up, and knowing the limited time in which the matter was to be considered, I have made some notes, and with your permission I will refer to them.

The report of the American members of the International Waterways Commission says:

There are now five principal corporations engaged in furnishing or preparing to furnish electricity for commercial purposes, obtained from water power, two of them located on the American and three on the Canadian side.

These companies are, on the American side, the Niagara Falls Hydraulic Power Manufacturing Company and the Niagara Falls Power Company. On the Canadian side, the Canadian Niagara Power Company, the Electrical Development Company of Ontario, and the Ontario Power Company.

I represent the Niagara Falls Electrical Transmission Company, which is the distributing company in the United States of the Electrical Development Company. The above-mentioned report says of the Electrical Development Company:

On the 29th of January, 1903, the commissioners for the Queen Victoria Niagara Falls Park entered into an agreement with three citizens of Canada, subsequently transferred to "The Electrical Development Company of Ontario (Limited)," incorporated by act of the legislature of Ontario. (5 Edward VII, chap. 12.) Under this agreement authority was given to take from the Niagara River water sufficient to develop 125,000 electrical horsepower. The amount is computed to be 11,200 cubic feet per second.

The location of the works is shown upon the map. Water is taken from the river about midway between the intakes of the Canadian Niagara Power Company and of the Ontario Power Company, or about half a mile above the Falls. A gathering dam, about 750 feet long, extends out into the river obliquely upstream, designed to divert the required amount of water into the power house, which is located upon the original shore line. Under the power house is a wheel pit, excavated in the solid rock to a depth of 158 feet, at the bottom of which are placed the turbines. After passing through the turbines the water is conveyed by a tunnel to the base of the Falls and discharged about midway between the Canadian and American shores. The works are not completed and no water is now being used. They represent an investment of several million dollars.

In case of each of the Canadian companies the authorities reserve the right to require that one-half the power generated shall be supplied to places in Canada.

The plant of the Electrical Development Company, unlike the construction of other power plants, is being completed in its entirety and already is practically finished. Already many millions of dollars have

been expended and by next fall it will have developed practically its entire output of electrical energy. While a description of this, I believe the most modern of the five power plants referred to, would be interesting, I will only state that in the formulating of the plans and the execution thereof every effort has been made to add to rather than detract from the beauty of the upper Niagara River.

No part of the company's works will be visible except the power house, which in style of architecture on the outside will be Italian renaissance. It is on the bank of the river at somewhat higher elevation than the main park driveway, and to overcome the difference in elevation broad terraces enhanced with parapets and wide flights of steps will be constructed, adding materially to the æsthetic appearance of the landscape at this point. A wide colonnade supported by massive stone columns graces the entire front of the structure, and from this colonnade visitors will be able to view through large plate-glass windows the complete operation of the massive machinery within the building.

Much has been said concerning the effect of diversion of water for power purposes on the scenic qualities of the Falls. The Waterways Commission's report says:

The total quantity of water to be taken from the river by works now authorized is:

	Cubic feet.
Niagara Falls Hydraulic Power and Manufacturing Company	9, 500
Niagara Falls Power Company	17, 200
Canadian Niagara Power Company	9, 500
Ontario Power Company, not including Welland River development	12, 000
Electrical Development Company	11, 200
Niagara Falls Park Railway Company	1, 500
Total	60, 900

Of this amount 26,700 cubic feet is to be taken on the American side and the remainder, 34,200 cubic feet, on the Canadian side.

It is within common knowledge that it is not practicable for the five companies above named to divert all the water to which by grants they may be entitled to take and that 50,000 cubic feet per second is the maximum which in all probability they will ever take.

The Waterways Commission will go no further than to say, "While the injury may be perceptible it may not be destructive or disastrous."

Water taken by the development company is again returned to Niagara River at the foot of Horseshoe Falls and commingles with other water falling and adds to the volume, a portion of the distance at least, during the descent.

While it is perhaps difficult to justly weigh the relative importance of benefiting the material or the æsthetic side of mankind, the great mass of our people can not afford the time or money to obtain the "æsthetic education" for which the Falls seem principally useful in the opinion of the Waterways Commission. The power developed has enabled the State of New York, through its manufacturers, to produce directly and electro-chemically many of the most important products for the progress, comfort, and well being of all our people. I might mention flour, food products, paper of all kinds, caustic soda, bleaching powder, numerous by products from chlorine, aluminum, graphite, carborundum (now used as a substitute for emery), phosphorus products, carbide for acetylene gas, sales slips, machinery of nearly all kinds, silverware and cutlery, and, in fact, almost all manufactured

products known, and by reason of new methods in manufacture, made possible by electric power, the price to the consumer has been and is bound to be materially lessened.

Many products heretofore principally obtained from foreign countries are now produced in western New York by the use of electric power. Not only will we obtain the benefits of new and cheaper products, but continuous employment will be given to a great number of our citizens. It seems to me it is equally as beneficial to mankind to permit of those things which will contribute to their material welfare and give them employment, food, clothing, and homes, as it is to educate their aesthetic tastes.

What is true of Niagara Falls is proportionately true of every beautiful river and falls in the United States. Van Dyke says he gets the most enjoyment out of little rivers. Others like best the turbulence of Niagara, the Columbia, and the Snake. It takes the beautiful rivers of the west and destroys their falls and cataracts to reclaim the vast American desert, and this is being done by Congress on the suggestion of our President.

The Great Snake River, with its mighty falls at Shoshone of over 200 feet—one of the great spectacles of this country and the only falls that can be compared with Niagara in volume of water and exceeding it in length of descent—is, I believe, to be largely sacrificed in the great Shoshone irrigation project—this for agricultural purposes.

It takes the waters from the beautiful rivers and falls of the State of Washington to irrigate the great Yakima Valley, the agricultural part of that State, and to develop the power that is now assisting in producing those empire cities on that sapphire sea, Puget Sound.

The taking of water by the Electrical Development Company will not in any way impair the scenic beauty of the American Falls, nor will it in anyway diminish the flow of water over the American Falls for the reason the point of intake is below the crest of the rapids and the point where Goat Island divides the American and Canadian falls. On this point the report of the Waterways Commission says:

The water taken on the Canadian side below the crest of the rapids will affect the Horseshoe Falls alone.

The point of intake of the Electrical Development Company is 23 feet below the American Falls, and water goes through the tunnel of this company at a lesser velocity than it passes over the Falls. It is difficult to determine with any degree of certainty the exact amount of water flowing in the Niagara River at the crest of the Falls. The Waterways Commission, basing their estimate on the army report for 1900, estimate "at the mean level of the lake (elevation 572.86) the volume of discharge is 222,400 cubic feet per second." But on the authority of the United States Lake Survey, an ordinary and usual flow of the river has been found by gauging the river near Black Rock to be 265,000 cubic feet per second.

That this is a reasonable figure is shown by the fact that the drainage area above Black Rock is 241,235 square miles; that from 37 to 30 inches of rain falls in this territory annually, and that 12 inches only of this rain would produce 213,000 cubic feet per second of outflow. This is the conclusion of Clemens Herschel, perhaps the most eminent and best qualified hydraulic engineer in this country, and Mr. Wallace C. Johnson, the eminent hydraulic engineer, who built the plant of the Niagara Falls Hydraulic Power Manufacturing Company, the

power plant at Shawinigen Falls and many other great power plants, and who has spent many years of his life at Niagara making his computations and measurements.

Mr. Thomas Comerford Martin, editor of the *Electrical World and Engineer*, read a paper before the Royal Institution of Great Britain, saying: "At Niagara there is discharged through two narrowing precipitous channels only 3,800 feet wide and 160 feet high the contents of 6,000 cubic miles of water, with a reservoir area of 90,000 square miles draining 300,000 square miles of territory. The ordinary overflow of this Atlantic set on edge is 275,000 cubic feet per second, and the quantity passing is estimated as high as 1,000,000 tons of water per hour. The drifting of a ship over the Horseshoe Falls has proved it to have a thickness at that point of over 16 feet. The amount of power represented by the water of the river has been estimated on different bases from 6,750,000 to 16,800,000 horsepower, the latter estimate being that of Sir William Siemens, made some years ago and is undoubtedly too high."

There have been a number of independent measurements of volume of the Niagara, and though the results differ widely, they probably do not differ more than the actual volume of the river at various stages of Lake Erie.

Lyell (1841?) quotes Ruggles as authority for a volume of 250,000 cubic feet per second.

But 1,518,000 gross horsepower has an effective productive value in manufacturing of, say, \$100 per horsepower per annum, or the inland waters of this State have an ultimate economic value, when fully developed, of at least \$151,800,000 per annum. They may therefore be considered, in producing capacity, substantially equal to the entire agricultural product of the State in 1890, which, according to the United States census of that year, amounted to a total of \$161,593,009. Indeed, taking into account that agricultural values are continually depreciating and water-power values appreciating, it is probable that ultimately, if New York State agriculture remains on the same basis as at present, the water-power values will considerably exceed the agricultural values. It is probable, however, if the manufacturing industries of this State are ever so far developed as to bring water power into use to the extent of 1,518,000 gross horsepower, that the local demand for agricultural products will have considerably changed the present downward tendency. As an offhand figure we may say, therefore, place these two values, at some not very distant date, as equal and approximating about \$200,000,000 per annum.

E. R. Blackwell, computed by Allen (*Am. Jour. Sci.*, 1841), obtains 374,000 cubic feet per second. His work was afterwards recomputed by D. F. Henry, who obtained 244,797 cubic feet per second.

In the Annual Report of the Chief of Engineers, United States Army, for 1867-68, D. F. Henry gives as a result of observations in August and September, 1867, 242,494 cubic feet per second. A year later he recomputed from the same data and obtained 240,192 cubic feet per second. He also made a new measurement by a different method (see report for 1868-69), from which he obtained two results, 304,307 and 258,586 cubic feet per second.

W. F. Reynolds (Annual Report of the Chief of Engineers, United States Army, 1870), gives the result of observations from June to September, 1869, 212,860 cubic feet per second.

In the Annual Report of the Chief of Engineers, United States Army, for 1871, there is mention of a result, without date of measurement, 245,296 cubic feet per second.

In the Annual Report of the Chief of Engineers, United States Army, for 1891-92, Quintus, as a result of gauging, gives the volume, reduced to mean stage, as 232,800 cubic feet per second.

Sir Casimir S. Gzowski, from continuous observations at the International Bridge, 1870-1873, gives an average discharge for that period of 246,000 cubic feet per second.

I believe it is safe to say there pours over the crest of the Falls at least 265,000 cubic feet per second during ordinary flow.

Assuming that the—

	Cubic feet.
Niagara Falls Hydraulic Power and Manufacturing Company will divert per second.....	9,500
The Niagara Falls Power Company will divert per second.....	8,600
The Canadian Power Company will divert per second	9,500
The Electric Development Company will divert per second	11,200
Ontario Power Company will divert per second.....	12,000
Niagara Falls Park Railway Company will divert per second.....	1,500

We will have a total diversion of but 52,300

or less than one-fifth of the total flow of the river.

We may now examine the effect that the withdrawal of these quantities from the river is likely to have on the appearance of the Falls, or, as it is termed, on the scenery. At first blush, this may seem utterly impossible of accomplishment and beyond the powers of computation, and to do so with precision is no doubt impossible. Nevertheless, it can be done with a fair degree of approximation, and one amply sufficient for practical purposes.

The laws of flowing water suffice for the computation of a close and sufficient approximation to the effect that would be produced at Niagara Falls by the withdrawal from the river of a stated portion of the total flow of 265,000 cubic feet per second.

Let us make the reasonably exact and truthful assumption that the American Falls, at an ordinary stage of the river, consists of a sheet of water 4 feet thick, flowing over a broad dam 900 feet long. Such a broad dam would discharge, based on the estimate of the Waterways Commission, 27,800 cubic feet per second.

The remaining 237,200 cubic feet per second we will suppose flowing over a broad dam 1,500 feet long, to do which it would have to flow in a sheet of water about 14 feet thick.

Within the limits of the present inquiry we next find that for every 5,000 cubic feet of water per second diverted from the river the American Falls would lose five-eighths of an inch in thickness out of its 4 feet of thickness of sheet of water, and the Horseshoe Falls would lose $2\frac{1}{4}$ inches out of the 14 feet of thickness of its sheet of water flowing over.

So that if the two American companies divert 18,100 cubic feet of water per second from above the American Falls, the thickness of the sheet of water passing at ordinary flow over the American Falls would be about 3 feet and between 8 and 9 inches instead of 4 feet, and if the three companies on the Canadian side divert 32,700 cubic feet per second below the crest of the Canadian rapids the thickness of the sheet of water passing at ordinary flow of the river over the Horseshoe Falls would be about $12\frac{1}{2}$ feet as against 14 feet. Even if the

effect were greater, could any one, no matter how often he might visit the Falls, by ordinary observation detect the difference by reason of the diversion above named or the diversion of a much greater quantity of water, and when one reflects on the uses for the benefit of mankind to which the water is put, is it not a fair case for compromise on a basis that will not blight the great industrial center of the United States and at the same time preserve the scenic features without noticeable impairment?

By reason of misstatements and gross exaggerations which have appeared from time to time in the public prints the public and undoubtedly this committee have obtained the impression that the people engaged in the great industries of western New York are without sentiment and have no desire to preserve the Falls. Such is farthest from the truth. Notwithstanding the present diversion it is a fact freely commented upon that apparently more water is passing over the Falls at present than for some years past; that the legislature of the State of New York has not granted a franchise to divert the waters of the Niagara River for power purposes since 1896—ten years ago; that the Falls are in no immediate danger from any companies who have obtained rights from the State of New York; that all lapsed charters, so called, have been repealed by the State of New York at the present session of the legislature.

As to the company which I represent, the Niagara Falls Electrical Transmission Company, it is a corporation organized and existing under the transportation corporation laws of the State of New York, with a capital stock of \$3,500,000. It is authorized by law to build and operate power transmission lines, transforming stations, and distributing systems in the counties of Niagara, Orleans, Erie, Genesee, and Monroe, in the State of New York. It has been authorized to do business by the commission of gas and electricity of the State of New York. It was organized for the purpose of selling in the United States all of the electrical energy which the Electrical Developing Company is authorized to so dispose of under its charter from the provincial government, to wit, 62,500 horsepower.

The development of this American distribution company has proceeded apace with the development of power. It has invested in the State of New York in transmission lines, distributing systems, rights of way, and necessary acquisition upward of \$800,000. It is directly or indirectly through its subcompanies under contract with more than twenty firms and corporations to furnish power. It is under contract with the municipalities of La Salle and Middleport, in the county of Niagara, with Albion and Waterport, in the county of Orleans, and Brockport, in the county of Monroe, to furnish those municipalities with electric current for lighting the public streets and the private and public dwellings, all of which contracts contain severe penalties for their violation. It owns distributing systems in the municipalities of Niagara Falls, La Salle, Hartland, Middleport, Gains, Carlton, Waterport, Albion, and Brockport, and is under contract to furnish the western House of Refuge, near Albion, with power, and has a transmission line constructed to that institution.

It is under contract with the Buffalo, Lockport and Rochester Railway to furnish that company with power for its operation. That road when completed will extend from Niagara Falls to North Tonawanda and by one branch into the city of Buffalo, by another branch into

the city of Rochester. This road is entirely financed, a good portion of the right of way has already been purchased and about one-third of the construction work done. Contracts aggregating many millions of dollars have been let. All of the above are dependent solely upon the Niagara Falls Electrical Transmission Company for power. To prevent the transmission company from obtaining power from the Electrical Development Company by legislation would result in abrogating contracts now existing and partially completed, duly and legally authorized and entered into under the laws of the State of New York. To prevent by this bill the transmission company from obtaining power from the Electrical Development Company would amount to a confiscation of all of its property in the United States besides subjecting it to untold sums in damages.

To prevent this company from supplying the municipalities, railroads, and factories which are and will be dependent solely on it for power would destroy millions of dollars of investment made by the contracting parties in good faith under the laws of the land, would blight the transportation, manufacturing, and commercial industries of western New York and cause widespread disaster. This company has obtained every legal right, franchise, and consent incident to the right to do business, as required by the State of New York, and asks that its contracts be not impaired.

We do believe it highly commendable that steps should be taken to preserve the scenic features of the falls, but in so doing we do not believe it necessary to confiscate property or destroy manufacturing, commercial, and railroad enterprises entered into and now partially or nearly completed. If the object of prohibiting the transmission into the United States of electrical power is to prevent further power development on the Canadian side, that plainly can not be accomplished by preventing the transmission company from taking and distributing in the United States the power from the Electrical Development Company, for the latter company now has a practically completed power plant using 11,200 cubic feet of water and developing 125,000 horsepower.

This prohibition, if desirable, should not apply to prevent the transmission company from taking and distributing that portion of the electrical energy of the Electrical Development Company available for the United States. Such prohibition would result only in the destruction of the transmission company and the industries dependent upon it, which are American industries sustained by American capital employing American labor.

The Waterways Commission in their report say:

The sums of money invested or being invested in the works now in operation or under construction and in the industries dependent upon them amount to many millions of dollars. It is probably not expedient to attempt the withdrawal of the rights thus utilized.

So far as the transmission company is concerned, it has obligated itself with the Electrical Development Company to distribute its power available for the United States, and has obligated itself to furnish this power to the municipalities, manufacturers, and railroads of western New York, thus having utilized the rights granted by the State of New York and its municipalities. Ordinarily there can be little objection to having transmitted to the United States cheap power which will directly and so enormously add to our wealth and prosperity. I

believe the commission do not view importation of power as an offense as long as it is not an incentive to new development. While I fail to see the necessity for any prohibition against the bringing of electricity into the United States, I ask if such a prohibition is imposed it does not apply to companies who have their plants completed, or nearly so, and that the transmission company be permitted to distribute in the United States the available power of the Electrical Development Company for that purpose.

The CHAIRMAN. In regard to this estimate as to the amount of water passing over the Falls, it would be interesting to the committee if you would refer to it, giving the document and page where it may be found. Some of the estimates are materially larger than others. There has been a recent report of the Chief of Engineers of the United States Army, for 1900, in which the volume of water discharged at an average stage is mentioned as 222,400 cubic feet per second, and then the volume has been estimated to be as low as 180,800 cubic feet per second at a low-water stage. We would be inclined to regard the estimate of the army engineers as more accurate. If there are other estimates which make the amount greater we would like to have an exact reference to them.

Mr. DUDLEY. I make these references for the purpose of sustaining my conclusion that it is impossible to obtain exactly the amount of water flowing over the Falls. I can not say that one measurement is any better than the others.

The CHAIRMAN. We would like to have the exact reference. The variety of figures given would tend to show that the amount can not be computed with exactness. We would like to examine the estimates in order to ascertain as near as may be their credibility.

Mr. DUDLEY. The measurements from which I am quoting are those of Clement Herschel, who is, I think, recognized as the principal authority as to the accepted amount of the discharge of Niagara. I think I can file affidavits from a number of observers to strengthen that conclusion.

Mr. ALEXANDER. When the del Homedieu bill was passed did it not give an unlimited supply of water?

Mr. DUDLEY. It was never passed. That bill was vetoed by Governor Odell. I was in the legislature at that time.

Mr. ALEXANDER. Was it not a bill which vested the power of eminent domain?

Mr. DUDLEY. The entire bill was vetoed. It never became a law.

Mr. ALEXANDER. Did not the del Homedieu bill carry an unlimited supply of water as to eminent domain—or, rather, were there not two bills?

Mr. DUDLEY. I think there was but one bill. That franchise was amended some years ago. The city of Lockport desired an extension of it.

Mr. ALEXANDER. That bill was absolutely killed.

Mr. DUDLEY. It was. There has been no bill amended by the State of New York since 1896. The bill amended at that time was one which confirmed the rights of the hydraulic company which existed. I prepared that measure myself.

The CHAIRMAN. What companies have been organized for the purpose of transmitting power to the United States?

Mr. DUDLEY. I would not presume to answer for any company except the one which I represent. It is recognized (and this is a round-about answer) that there is not at the present time on the Canadian side the amount of power in point of capacity that can be generated.

It undoubtedly was the intention of those companies having to do with this matter, and who built plants, that they would get a portion, at least, of the power developed and would sell it on the American side. The extent of that was problematical on account of the long distance of transmission, which was then an unknown factor. That has developed so wonderfully, by reason of what I might term late experiments, that it is now impossible to say whether these companies can not make and transmit the power on the Canadian side, because power is going to be transmitted as far as Windsor, which is opposite Detroit. It is to be transmitted also to other commercial centers. The original object undoubtedly was to dispose of some portion of the power on the American side. Just what proportion I do not think anybody knows.

Mr. RANDELL. About how far can it be profitably transmitted?

Mr. DUDLEY. Computing coal at its present price, I should say about 200 miles.

Mr. BISHOP. What is the percentage of loss in transmitting it that distance?

Mr. DUDLEY. I am not qualified to answer that question, not being an engineer.

The CHAIRMAN. It depends on the kind of wire used and the amount of power taken off.

Mr. DUDLEY. Ordinarily the loss is lessened in proportion to the amount of wire used in transmission.

Mr. ELLIS. What are the other uses for that power?

Mr. DUDLEY. In the operation of street cars in Canadian cities and in furnishing the corporations of Toronto and other cities in Canada with power.

The CHAIRMAN. You say you think it is desirable to take measures to preserve the scenic beauty of the Falls. The committee desires information on that point. What measure do you think should be taken to preserve the scenic beauty of the falls.

Mr. DUDLEY. I was never called upon to consider that until last Friday, but my mind has been working rapidly ever since, and yet I do not know that I have come to any conclusion that would be worthy of presentation to this committee. I do not think, however, that the limit has yet been reached, so far as it relates to the diversion of water, which will affect in any way (at least to the observer) the scenery of the Falls. A prohibition can be imposed whenever it is determined that prevention of further diversion of the water is necessary—a prohibition that would accomplish results.

The CHAIRMAN. Is it not true that the level of the lake has been higher for several years past than the average level?

Mr. DUDLEY. That has been produced by a variety of natural causes.

The CHAIRMAN. Is it not true that the movement of the level of the lakes has been in cycles, so that it is likely in a few years instead of being above to be below the normal level?

Mr. DUDLEY. I think that is so claimed by some scientific gentlemen.

The CHAIRMAN. Can you tell with any certainty that the flow over the falls will not in normal seasons materially diminish?

Mr. DUDLEY. A man named William Boom, the oldest resident of Niagara Falls, who has lived in Niagara Falls seventy-five years, and who has made observations from time to time of the waters that flow over the falls, reckoning by certain rocks above the falls, stated on Sunday last that the waters, notwithstanding the present diversion, shows that the flow is higher now than it has been for some years past, and that there had never been any appreciable decrease in the average flow of the water. There have been times, as has been referred to here, when the winds and the ice would cause the flow to be modified enormously, but the average has been maintained during that seventy-five years, according to the observations of this man. That impressed me in the belief that there is never going to be any particular change in the fall of water of the Niagara River.

The CHAIRMAN. You make an estimate of 40 per cent. Do you think that so great an amount of water can be taken out of the river without an injury to the scenic beauty of the Falls?

Mr. DUDLEY. I can only state the matter, as the problem has been solved by those who are competent, such men as Wallace and Herschel. They have reckoned according to well-known methods, which can be substantiated if there is any question about it. I know in a general way as to the fall of water and the effect of it. I know that it is not proved by mathematical calculation, nor by actual observation, but the results obtained are about the same. I agree entirely with what Mr. Cooper said concerning the method by which they arrive at those conclusions.

The CHAIRMAN. In determining the scenic grandeur of the falls you would ignore the volume of water going over them?

Mr. DUDLEY. I have lived in Niagara Falls a great many years. There are only two ways of determining the appreciable flow of water over the falls, and those methods are by the eye and the ear. It is absolutely impossible for anyone to detect by the eye the difference between $12\frac{1}{2}$ feet of water and 14 feet of water, or the difference between 3 feet 9 inches and 4 feet of water. So far as the eye is concerned there is no one who can determine that, and I want to be perfectly fair and truthful.

So far as the ear is concerned, there would be great difficulty in hearing your own voice or in talking to your companion if you were trying to judge by that volume of sound. The volume of sound from the Falls is overwhelming, and will be just as overwhelming with 3 feet 9 inches of water as with 4 feet of water, or it will be just as overwhelming with 12 as with 14 feet. If you had some instrument for measuring the volume of water, and that instrument was a mile away from the Falls, it might be possible to appreciate it, but people do not view the Falls from that distance.

The CHAIRMAN. You say that 40 per cent might be diverted?

Mr. DUDLEY. At that point the danger begins to increase, but, technically speaking, of course, every drop diminishes it.

The CHAIRMAN. What is the quantity or the number of cubic feet per second on the Canadian and American sides, respectively, that you regard as belonging to companies having rights?

Mr. DUDLEY. I think the Waterways Commission decided that.

The CHAIRMAN. That does not include the General Electric Company?

Mr. DUDLEY. No.

The CHAIRMAN. Do you regard any company as having rights aside from those mentioned in the report of the International Waterways Commission?

Mr. DUDLEY. I have examined the franchises of the General Electric Company, and so far as I have examined them I believe that is a vested right. I think all the companies have vested rights so far as taking water below the Falls is concerned.

The CHAIRMAN. Taking water below the Falls—below the rapids.

Mr. DUDLEY. Below the rapids. I think that is the only way to judge. I do not know anything about the Canadian side.

The CHAIRMAN. Would you say the General Electric Company is the only one outside of those mentioned in the report of the International Waterways Commission having a right to withdraw water above the Falls?

Mr. DUDLEY. I would.

The CHAIRMAN. How about the Lockport Supply Company; that is a transmission company, is it not?

Mr. DUDLEY. Yes.

The CHAIRMAN (to a bystander). Does your company claim the right to take water from above the Falls?

BYSTANDER. Yes, sir.

Mr. DUDLEY. I withdraw any statement I made respecting that situation, because I do not pretend to have a knowledge of the legal rights.

Mr. ELLIS. This General Electric Supply Company is not one of the five mentioned?

Mr. DUDLEY. No, sir.

Mr. ELLIS. The Canadian Irrigation and Water Supply Company—that is the General Electric Company?

Mr. DUDLEY. Yes, sir.

The CHAIRMAN. You have offered no suggestion as to the methods which should be adopted. I would like to have your views on that point.

Mr. DUDLEY. I am interested in the Electrical Transmission Company as I have explained, and I will ask that we be permitted to carry out our contracts. That is as far as I represent the power company in which I am concerned, and as representing the city of Niagara Falls and other municipalities through western New York, I will state that the amount of water diversion which will impair the scenic qualities of the Falls ought to be definitely determined. In my opinion that amount has not yet been reached, and will not be reached even by taking the power desired by the General Electrical Company. Whenever that is ascertained or reached then it will be time to prohibit further development along that line. I do not wish to advocate any power monopoly because I am not interested in them, but there is a time coming when, after due and serious deliberation, the development of any further scheme may be prohibited.

The CHAIRMAN. Then you would favor waiting until the time is reached when the beauties of the falls are materially injured by the diversion of the water before you would favor legislation?

Mr. DUDLEY. No; but I would say that the information that has been given to you has been—except of course as to the statement of the International Waterways Commission—largely misinformation, and until you obtain the accurate facts you will not be able to deter-

mine when the time is reached that the falls are in imminent danger. No franchise which is now outstanding will ever impair the scenic qualities of the falls.

Mr. LAWRENCE. What percentage of the flow of water over the Falls do you consider is now authorized to be diverted?

Mr. DUDLEY. I can not answer that question, because no limit is fixed on this general electric charter.

The CHAIRMAN. Is it not 17,000 cubic feet?

Mr. DUDLEY. In my opinion no franchise on the Canadian side is concerned.

Mr. LAWRENCE. What percentage of the flow do you consider it would be safe to be authorized to be diverted?

Mr. DUDLEY. There would be no risk in anything up to 30 per cent.

The CHAIRMAN. Then you do not agree with Mr. Cooper's estimate of 40 to 50 per cent?

Mr. DUDLEY. I do not recall what his estimate was.

The CHAIRMAN. Your general opinion is that it should be not more than 30 per cent?

Mr. DUDLEY. I should say that surely there should be no risk of impairment if that amount of water were diverted.

Mr. LORIMER. The American Falls is more shallow over the crest than the Canadian Falls, and a like percentage would more quickly affect the scenic beauty there than it would on the Canadian side.

Mr. DUDLEY. Not necessarily, because the waters will readjust themselves. If a certain amount of water were to be taken from the American side it would be unwise to take more than 30 per cent.

The CHAIRMAN. Some estimate has been made of the amount that might be taken on the Canadian side near Goat Island.

Mr. DUDLEY. I do not know about that. So far as the electrical company is concerned—that is, the company in which I am interested—the amount it takes does not affect the falls one particle.

The CHAIRMAN. You take from the Canadian side?

Mr. DUDLEY. Yes; at a point where it can not by any possibility affect the flow of water over the American Falls, because it does not run faster over the falls than through the tunnel—the velocity is greater.

Mr. RANDELL. On page 9 of the report of the International Waterways Commission the amount is stated as 60,900 cubic feet per second. They do not mention the electrical company at all.

Mr. DUDLEY. No.

Mr. RANDELL. Another gentleman is seeking a contract for a good, big amount, and there are two other companies wanting 20,000 and 30,000 feet per second in addition to the 60,900 cubic feet. Can you tell how much more the Canadians were going to claim?

Mr. DUDLEY. I believe there is a feeling in Canada, the same as in the United States, that the commercial importance of this matter is as great as the æsthetic importance, and that up to a point the people of both countries are desirous of using them for commercial purposes. It seems to me there can be no question about that.

Mr. RANDELL. I would like to know how far we should rely on this report here when they say there is that much authorized, and you gentlemen that have come to us here claim that this electric-power company has an unlimited amount. This is on page 9, where the total quantity of water to be taken from the river by works now authorized

is given at 60,900 cubic feet per second; but there they make no mention of this electric company.

Mr. ELLIS. This other company is claiming some rights additional. The CHAIRMAN. They are yet to be heard.

Mr. ELLIS. Then that will make four on the American side; is that the idea?

The CHAIRMAN. Yes.

Mr. DUDLEY. So far as the transmission company is concerned we ask no rights on the American side.

Mr. BURGESS. You say you think 30 per cent taken from the stream would not impair the falls. I want to understand whether you mean 30 per cent of the water that goes over the falls or 30 per cent of the volume of the water taken out above the falls, because I do not understand that that means the same thing. Which do you mean? What I want to get straight in my own mind is this. I get it from these engineers that 30 per cent of the volume of the water taken out above would not reduce the depth over the falls 30 per cent.

Mr. DUDLEY. Oh, no; no, it would not.

Mr. BURGESS. Now, then, when you say 30 per cent can be safely taken without impairing the beauty of the Falls, do you mean 30 per cent of the depth flowing over the Falls or 30 per cent of the volume above the Falls?

Mr. DUDLEY. Thirty per cent of the water, because we measure it in cubic feet per second. I thank you, gentlemen.

(At 11.35 o'clock a. m. the committee took a recess until 12.30 o'clock p. m.)

AFTER RECESS.

The committee met pursuant to the taking of recess, Hon. Theodore E. Burton (chairman) in the chair.

STATEMENT OF JOHN L. ROMER, ESQ., COUNSEL, NIAGARA FALLS HYDRAULIC POWER AND MANUFACTURING COMPANY.

Mr. ROMER. I hold a retainer for the Niagara Falls Hydraulic Power and Manufacturing Company. I am not here exactly as the lawyer of the company, but I happen to be one of the directors, and in my capacity as one of the executors of Jacob F. Schoellkopf, the founder of the company, and who became the individual proprietor of this canal before the organization of this company, and as one of the executors of his estate and as the executor of one of his deceased sons, who takes certain stock in this company under his will, I am here to protect, so far as I may, the individual rights and interests of this family, the stock of this company being held very largely by the Schoellkopf family, only a few shares being held by some other individuals.

In 1809 the State of New York granted, by letters patent, to Augustus Porter, and from that time on to 1813, a number of the farm lots constituting a part of what is known as the mile reserve, bordering on the easterly bank of the Niagara River. The Porters purchased lots 41 to 44, and those lots extend from a point on the river above the falls to a point on the river below the falls. Our canal has its intake on lot 41, and the intake is known as Port Day. It is the last point which can be reached by boats on the Niagara River, and in the early days Port Day was a port of entry. Not very much merchandise came into this

country from Canada at that point, but still it was a port of entry and was called Port Day. A tug or a small launch or vessels of light draft can go with a reasonable degree of safety from points above on the river to our inlet; but as for navigation below our inlet, if anyone wishes to attempt it I would prefer to go ashore.

In 1846 the Porters caused surveys to be made laying out the hydraulic canal, beginning at Port Day and running down to the basin on lot 44 below the Falls, on the high bank of the river. In 1852 the Porters, then being the owners of this land, entered into a contract with one Walter Bryant, of Boston, for the construction of the hydraulic canal.

THE CHAIRMAN. What year was that?

MR. ROMER. 1852. They entered into this contract with Mr. Bryant for the construction of the hydraulic canal through a strip of land they set apart for the purpose 50 feet in width through the village to the high bank below the Falls, about 1 mile in length, and the contract with Bryant gave him the right to construct this canal to the full width of 100 feet.

Bryant began the work of excavation and construction, and that canal was opened first to a width of 35 feet, and I think it was in that condition that Bryant did a part of the work; and his successors, a man by the name of Miller, of Philadelphia, and afterwards Horace H. Day, of India River fame, put in a number of hundreds of thousands of dollars. Day sunk his entire fortune in completing the canal, and when Day had ceased his work, which was along in the sixties sometime, there was upon the basin below the canal one small grist mill having a capacity of 40 bushels of flour a day. The canal and property continued in that condition until it was bought by Jacob F. Schoellkopf at public auction, Mr. Day's finances having reached a point where he could no longer carry it.

I think that purchase was in 1877. Mr. Schoellkopf, as anyone familiar with the history of Buffalo and eastern New York will know, was one of the most enterprising citizens we ever had. He began life as a tanner, and he had tanneries in Milwaukee and Buffalo, as well as several other places. He was then in the milling business at Black Rock and he began constructing this canal, and at once he erected a mill having a capacity of 1,500 barrels a day, and put the wheels down a depth, I think, of 50 feet and set the thing going, and demonstrated in the carrying on and operation of that mill that the waters of Niagara Falls in large volume could be used in high heads profitably. Later on other mills came there. The Oneida Community moved its works from Connecticut and began the manufacture of silver-plated ware there.

Then the work of widening the Canal began. Mr. Schoellkopf organized the Hydraulic Power and Manufacturing Company, with a capital of \$100,000; not excessive. It has never been increased. The stock is held by his own family very largely. From time to time new mills were erected, attracted there by the cheapness of the power. That called for the enlargement of the canal. It was finally enlarged to 70 feet. Now it has been enlarged to the full width of 100 feet, except under a couple of the streets of Niagara Falls, Third and Fourth streets, where the city had erected bridges only 70 feet in width, and we have had some litigation with them over the question of who should construct the new bridges, and we have now entered into an agreement

with the city by which the company is to erect the new bridges and widen them to 100 feet, and leave it to the ultimate result as to whether the company or the city shall stand the expense. The work is going on.

We had no license or charter from the city to take water from the river. In the genesis of this canal it was supposed that the right of the riparian owner under the common law was sufficient to enable the owner to draw water for milling and manufacturing purposes from the river, returning it to the stream without injury to the owners below; that that was a sufficient title to draw that water.

The CHAIRMAN. I understand when the original canal was constructed the riparian owner owned the bank from the intake to the outlet?

Mr. ROMER. I understand so. No; the Porters may have sold some of the property down along the rapids and nearer to the Falls.

The CHAIRMAN. First it belonged to the State?

Mr. ROMER. First it belonged to the State.

The CHAIRMAN. Then it went to the Porters?

Mr. ROMER. Then it went to the Porters. From the Porters it comes to us. They owned all of this land. Then they sold off from time to time as the people desired residences or something of that sort along the river, but they owned all of the land from lot 41, where our inlet is, through the entire length of the canal, 4,400 and odd feet.

The CHAIRMAN. At any rate, they owned where their canal was, without any question of the right of eminent domain?

Mr. ROMER. Yes, sir; without any question of the right of eminent domain; and we own it now.

As I say, we depended upon our rights as riparian owners. There came a time ten or twelve years ago—in 1894—when there was about as much public clamor about the destruction of the Falls as there is now. The State in the meantime had acquired title to the lands on the shore of the river from the point where our property is located down through the village and below the Falls and had devoted it to the purposes of a public park, free for everybody. Mr. Andrew H. Green, who had that in charge, became alarmed because the legislature was granting charters to everybody that came to draw large amounts of water from the canal, and he began to oppose the granting of those privileges. He was a member of the State convention which met in our State and formed a new State constitution in 1894.

Mr. Choate, later ambassador to England, was chairman of that convention, and Elihu H. Root was an influential member of the convention, and Mr. Green brought before that convention this question of the diversion of the waters of the Niagara River. A subcommittee was appointed consisting of five or six gentlemen, who went to Niagara and spent two or three days in investigating the subject and looking at it with their own eyes, and they reported to the committee in this wise:

“If the company under discussion”—that is, the Niagara Falls Power Company—“uses its full limit of 200,000 horsepower, it would draw from the river about 6 per cent of the entire volume of water.”

It also says on page 7:

That the total limit for both companies would be a little over 9 per cent for the total flow of the river.

It also says on page 11:

“Two of them,” that is, the Niagara Falls Power Company and the Niagara Falls Hydraulic Power and Manufacturing Company,

"have expended large sums of money and are now operating their respective plants, and the amount of water which they can take will not do appreciably any injury to the Falls."

Now, that was the report of the subcommittee of the committee on legislative powers of that convention, after having a full and complete investigation as to the state of things at Niagara. I obtained at that time, for the purpose of presenting it to the committee for its consideration, from Mr. Hirshell, the engineer whose name was mentioned here this morning, an estimate as to the difference which would be made in the American Falls if the power to which both of these companies were entitled (not what they are actually using, but what was necessary to fulfill their grants, 200,000 to one company and, I think, 200,000 to ours), an estimate as to what difference the subtraction of the water necessary to make that amount of power would make in the flow of water over the American Falls.

Mr. Hirshell reported to me that if both of these companies exercised their full right to withdraw that power, it would make a difference in the thickness of the sheet of water flowing over the American Falls of 3 inches. That was the statement made by Mr. Cooper here yesterday. It was the first time that I ever saw him, and I was glad to hear him say that, showing that the engineers who possess some technical knowledge of this matter are agreed in the matter.

Now, corroborative of this is this other fact, that for twenty years or more the Niagara Falls Hydraulic Power and Manufacturing Company has maintained at Port Day iron gauges marked in feet and inches, fastened on the masonry in the wall of their inlet, indicating the height of the water as above tide water at Albany. The United States authorities ran their levels and settled on some point there in the park, where they erected a bench mark showing 565.61 feet above tide water at Albany. These gauges were fastened on the wall of the inlet in accord with that determination.

Until the electrical power came to be used the mills there at Niagara shut down on Sunday. They worked during the week days, but on Sundays there was no draft of water from the canal. Latterly, since they have been using electrical power, a good many of the concerns find it necessary to use the power constantly. They can not shut down without loss. So they use it on Sundays as well as week days. But during the time I speak of when the mills shut down on Sundays the record of these gauges taken for twenty years show that there was no difference at Port Day in the level of the river on Sundays from what it was on week days, other conditions being equal; so that the draft of water from our canal made no difference which could be reckoned by the eye of the observer or on the gauges there established. You can not detect the difference.

Mr. JONES. How much water were you taking out there, then?

Mr. ROMER. Pretty near as much as we are now.

Mr. HUMPHREYS. Where was that gauge located?

Mr. ROMER. Just at the opening of our inlet on the river.

Mr. JONES. Above or below?

Mr. ROMER. On the lower side of the intake.

Mr. HUMPHREYS. How far below? Right at it?

Mr. ROMER. Right at the wall of the inlet. There is a wall of masonry there, and on the corner of that, right at the river's edge, this gauge was established.

Mr. JONES. How many cubic feet are you taking now?

Mr. ROMER. About 4,000 cubic feet now.

Mr. JONES. That is the actual use now?

Mr. ROMER. Yes, sir.

Mr. JONES. That was the actual amount taken at that time when these readings were made?

Mr. ROMER. No, sir; it was about 3,000 feet then.

Mr. ALEXANDER. How much are you allowed to take?

Mr. ROMER. We are allowed by the State of New York to take 9,500 cubic feet a second. But the winds make a great difference in the height of the river. An ordinary northeast wind blowing for a day or two will lower the river $2\frac{1}{2}$ or 3 feet.

Mr. JONES. The more water that is taken out, the greater the difference that will be made by the water taken out.

The CHAIRMAN. We should be glad if you would make clear to us how your statement about the effect of the winds really affects the question. Of course every stream is affected by the wind more or less. For instance, the Delaware River below Philadelphia is sometimes higher and sometimes lower because of the wind. The Patapsco River below Baltimore is sometimes higher and sometimes lower because of the wind, and we have had hearings here where parties sought to state the number of days per month during which the height of the water was affected. One thing that is very clear to the committee is that they have never gone away abandoning their claims for deeper channels because occasionally the wind made them deeper. I think on the same principle we would hardly think that the beauty of the Falls could be preserved irrespective of the amount of the average flow because occasionally the wind raises the level.

Mr. ROMER. Yes, sir; I understand. But the wind also raises a good deal of the clamor, I think, that we hear about the destruction of the Falls.

The CHAIRMAN. Your idea is that those persons happen to be there on some days when the wind is from the east and has lowered the water?

Mr. ROMER. Yes, sir; and if they happen to see a rock bobbing up in the rapids that they never saw before, they immediately begin to exclaim about what a shame it is that the power companies should be allowed to draw so much water from the river. As a matter of fact, it is not the power companies at all, but it is the wind blowing up the lake.

I have here a chart made up from the readings of those gauges and showing how the river fluctuates. There it came down 2 or 3 feet [indicating on chart], owing to the wind; but it soon reestablished itself on its ordinary level. It fluctuates considerably in that way, not as a result of the draft of the mills, because that is substantially constant, but because of the winds.

Mr. HUMPHREYS. Is there any gauge established below this intake at any considerable distance, several hundred feet or more below it?

Mr. ROMER. I do not know of any. Our intake is above the rapids, and it is at a point on the river where the river is over a mile in width, at a point considerably above Goat Island. Here is Goat Island [indicating on map], the Falls being at the lower point. This is what you may term the American branch of the river [indicating]. Here is the Horseshoe, and our intake is at that brown spot [indicating on map]—

above the point where there is any dangerous velocity to the stream, and above the rapids—and the water that we take there we claim is at a point in this river where the natural law by which water seeks its own level is operative, and, as we draw water from that point, the stream, a mile in width, soon equalizes it and makes good any subtraction that we make, and that is one reason we think there is no appreciable lowering of the water by reason of what we take through that canal.

Mr. HUMPHREYS. In other words, you really take from the Canadian side?

Mr. ROMER. Yes, sir; the commission's report says that five-sixths of the water comes from the Canadian side and one-sixth from the American side.

Mr. ELLIS. Is there not any current?

Mr. ROMER. Yes, sir. I do not know about the currents.

Mr. RANSDALL. Where do the Canadian companies take their water?

Mr. ROMER. From a point below the head of Goat Island, along here [indicating], so that they can not draw from the American branch, and we take from a point away above there, so that we take from the main stream, and it can not be said that we take from the American branch of the river.

Mr. RANSDALL. Where do the other American companies take their water from?

Mr. ROMER. That little place there [indicating] is the intake of the Niagara Falls Power Company.

Mr. RANSDALL. They take above you?

Mr. ROMER. Yes, sir.

Mr. RANSDALL. How much above you?

Mr. ROMER. Eight hundred feet.

Mr. JONES. Does anybody take below you?

Mr. ROMER. No, sir; we are at the lowest point on the river where water can be taken. The State owns from there on down below the the falls.

Mr. DAVIDSON. How far are you from the head of Goat Island?

Mr. ROMER. Half a mile from the head of Goat Island.

Mr. HUMPHREYS. The State does not permit anybody to take the water from the part that it owns?

Mr. ROMER. No, sir.

Mr. ELLIS. How far above the point you have indicated does this General Electric Company get its water?

Mr. ROMER. That is opposite Cayuga. That is above here [indicating].

A BYSTANDER. It is 3 or 4 miles.

The CHAIRMAN. How far is that?

Mr. ROMER. I think that is 3 or 4 miles above our intake.

Mr. ALEXANDER. It is farther than that, is it not?

A BYSTANDER. It is 4 or 5 miles.

Mr. ALEXANDER. Five or 6 miles, I should say. How far is the Falls below the lake?

Mr. ROMER. It is 22 miles; it may be a little more by the river. This section of the map printed in red is the land of the Niagara Falls Power Company; that indicated in brown is the land of the United Power Company. Here is where the mills and power houses are located, below the Falls [indicating on map].

The Waterways Commission report that 26,700 cubic feet of water flow over the American Falls. About one-sixth of that they state is subtracted from the American branch of the river, or the American branch is lessened that much. That would reduce the amount flowing over the American Falls really, because of these New York companies, by 4,450 cubic feet per second. That is all that is chargeable to the American branch of the river by reason of the exercise of these rights by the American companies to the full extent of their rights. That is about 16 per cent.

Now, our draft which we are permitted to draw as the State of New York has given us permission to draw is 9,500 cubic feet of water per second, and if we exercised that right the proportion of that water which would be subtracted from the American branch of the river would be about 6 per cent of the water naturally flowing over the American Falls, and that is a pretty small percentage.

In 1896, the agitation over the destruction of Niagara Falls continuing, Mr. Green asked the Attorney-General if he would not write an opinion defining our rights, and the Attorney-General said he thought we were a nuisance and were to be enjoined, and all that. Of course we did not acquiesce in any such opinion as that; but we thought that it was time to do something, and although we had not had any charter and had not asked the State for any privileges we thought that it was time that the subject should be put at rest so far as our company was concerned, and we went to the State of New York and presented our case, and Mr. Dudley was a member of the assembly and had charge of the bill and secured its passage, and I would like to read that. It is as follows:

The people of the State of New York, represented in senate assembly, do enact as follows:

"SECTION 1. The right of the Niagara Falls Hydraulic Power and Manufacturing Company to take, draw, use, and lease, and sell to others to use the waters of Niagara River for domestic, municipal, manufacturing, heating, lighting, and other business purposes is hereby recognized, declared, and confirmed."

That is our charter, if you can call it a charter, from the State of New York. They recognized our common-law right to take this water, and declared it and confirmed it. Then, they go on and say that the exercise of this right on our part shall be limited to taking as much water from the river as we can take through a canal 100 feet wide and of the uniform depth and slope of 14 feet, and that can be supplied by the draft of 9,500 cubic feet of water per second.

Mr. ELLIS. Do you think you lost any rights by that bill?

Mr. ROMER. We have had our canal 100 feet wide and do not expect to enlarge it or make it any deeper than 14 feet, and as long as the State saw fit to recognize our right to that they did not take anything we expected to take.

Mr. ELLIS. Do you think that you gained anything from the State by that that you did not have before?

Mr. ROMER. No, sir; I do not think we did.

Mr. ELLIS. Was the attorney-general's opinion published?

Mr. ROMER. It is a part of the water commission's report.

Mr. ELLIS. Oh, yes.

Mr. ROMER. But the State by its legislature recognizes our right and confirms it, and upon the strength and faith of that legislation, as well as our common law rights, we have entered into contracts with

various companies and individuals involving the expenditure of a great deal of money and we desire to fulfill those contracts, and our lessees desire to fulfill contracts which they in turn have made upon the faith of our contracts, and if this bill now under consideration passes it will upset and destroy and embarrass people up there more than can be stated just now. When we talk about destruction and devastation, anything being done at Niagara does not bear any comparison with what this bill would create.

Mr. ALEXANDER. You claim that you have the right to use 9,500 cubic feet?

Mr. ROMER. Yes, sir.

The CHAIRMAN. What are you using now?

Mr. ROMER. Four thousand feet. But we have works under construction which will require more. I have photographs of some of the works here.

The CHAIRMAN. Pardon me, before you leave that; does not this commission recommend that you be granted the right to use that 9,500 cubic feet?

Mr. ROMER. Yes, it does, sir; but your bill does not carry that recommendation. It says we shall use only what we are using now, and that would cause a loss to us of \$2,000,000, and besides raise great trouble with us on contracts extending over thirty years. For instance, the Pittsburg Reduction Company, manufacturing aluminum, has lately entered into a contract with us by which we are to furnish them a very large quantity of power, and that is to be furnished them as soon as they can get a new power house completed, which is now under construction.

We have entered into other contracts; for instance, one with the I. T. Morris Company for the construction of turbine wheels, involving \$120,000, and that is likely to be increased to a much larger sum; and the contracts are let, and they are engaged in preparing the wheels. The Pittsburg Reduction Company, acting upon our lease, which was executed two or three months ago, have entered into contracts for the purpose of supplying aluminium bars, and they have drawn contracts for the manufacture in their own plant of aluminium, which they tell us will cost over a million dollars, and they have let their contracts for generators, and all that sort of thing.

Mr. LAWRENCE. Mr. Dudley, I think, this morning made a very admirable statement of the situation when he said that the people of this country and the people of Canada want the commercial value of Niagara Falls to be utilized so far as it can be without marring the scenic beauty of the Falls.

Mr. ROMER. Yes, sir; certainly.

Mr. LAWRENCE (continuing). And what this committee are endeavoring to ascertain is just what that point is to which such utilization can be carried. What is your view as to that point? To what point can the commercial use of the water be carried without injuring the beauty of the Falls?

The CHAIRMAN. I will say to you, and to any other gentleman who is heard here, that this point is of most vital importance and interest. You all combine in saying that it would be a shame to destroy the scenic beauty of Niagara Falls.

Mr. ROMER. We do not want to do that.

The CHAIRMAN. We would be consenting to a wrong if we were to consent to that. On the other hand, you are all insisting upon using very considerable amounts of power, both from this side and from the Canadian side.

Mr. ROMER. Yes, sir.

The CHAIRMAN. Now, in order to make that position consistent, it seems to me anyone who argues for the use of power should seek to throw all possible light on the question of just what is the point up to which power can be used without injuring the scenic excellence of the cataract.

Mr. ROMER. Any light or information or data which we can furnish either to the committee or anyone else we are entirely willing to give. The water commission called upon us for information, and we furnished it.

I have here a photograph that may give you some light upon the subject. I do not know whether you can see it from where you sit, Mr. Chairman, or not, but here on the lower bank is the power house [presenting photograph to the committee].

Mr. ROMER. You see down here there are some overflows. They look larger in the photograph than they really are. This lower power house was constructed eight or ten years ago. When was that constructed, Mr. Mathews?

Mr. MATHEWS. In 1897.

Mr. ROMER. There is being developed there 30,000 horsepower, and the power is taken down through three penstocks that you see extending over the bank. One of those is 8 feet in diameter and one is 11 feet in diameter. They furnish sufficient water to generate 30,000 horsepower, and that is discharged into the river right here [indicating]. You can see that that amount of water sufficient to generate 30,000 horsepower amounts to nothing. It is hardly perceptible.

The CHAIRMAN. Of course your development of power is at the outlet of the river. The channel to the outlet is on the level, practically?

Mr. ROMER. There is a little slope of 3 or 4 feet.

The CHAIRMAN. But the real development of your power and your equipment is at the outlet?

Mr. ROMER. I understand that that is where our head is measured from.

Mr. LAWRENCE. What is your opinion as to the amount of water that can be diverted without impairing the beauty of the Falls?

Mr. ROMER. That is a question for the engineers rather than for me.

Mr. LAWRENCE. I expect that you have given it a good deal of thought, though.

Mr. ROMER. We have given it a great deal of thought. Mr. Cooper said that it was 40 per cent. It struck me while he was saying that, that 40 per cent is a little high. I would not undertake to say about that. Mr. Harper is our engineer. What do you say, Mr. Harper?

Mr. HARPER. I believe that the abstraction of water could be made 33 per cent from the Canadian Falls, and 20 per cent from the American Falls, without greatly destroying the scenic beauty.

Mr. LAWRENCE. How much would that amount to, put in cubic feet—the total?

Mr. ROMER. That would amount to something slightly in excess of

the amount stated on page 9 of this waterways commission report, or in the neighborhood of 70,000 cubic feet.

Mr. HUMPHREYS. You say without destroying the beauty of the Falls?

Mr. LAWRENCE. You did not mean to make it as strong as that, did you?

Mr. HARPER. I meant without seriously affecting it.

Mr. LAWRENCE. This would make it 70,000 cubic feet per second?

Mr. HARPER. Yes, sir.

The CHAIRMAN. Seventy thousand cubic feet per second?

Mr. HARPER. Yes, sir.

The CHAIRMAN. You make a distinction between the diversion on the Canadian side and that on the American side?

Mr. HARPER. Yes, sir.

The CHAIRMAN. It might be well, Mr. Romer, to interrupt your statement here and allow Mr. Harper to continue on this matter.

Mr. ROMER. Very well.

STATEMENT OF MR. JOHN L. HARPER, ENGINEER, NIAGARA FALLS HYDRAULIC POWER AND MANUFACTURING COMPANY.

The CHAIRMAN. Have you considered this suggestion of Mr. Cooper to dredge an area 700 feet by 500 feet at a point above the American Falls, with a view to increasing the flow on the American side?

Mr. HARPER. I listened to that statement and it is a feasible proposition. Such dredging off or deepening of the river bottom at that point would increase the flow over the American Falls, of course at the expense of the Canadian Falls.

Mr. JONES. These percentages that you state might be taken out would appreciably detract from the beauty of the Falls?

Mr. HARPER. I believe that you can notice it at the very low points of water; that is, when the wind brings the water level down, but I do not believe that it would be noticed, nor do I believe that it would detract materially from the beauty of the Falls.

Mr. JONES. You believe that you could take off that much without any appreciable effect on the scenic beauty of the Falls?

Mr. HARPER. I do not believe that a man, not considering gauge marks and not seeing direct the edge of the Falls, would detect it at all.

The CHAIRMAN. Have you taken into consideration that the level of the lakes in recent years has been higher than ordinary, in making your estimates?

Mr. HARPER. The estimate that I used was the one taken from the Waterways Commission report, using the 222,000 cubic feet per second as an average.

The CHAIRMAN. You base it on that?

Mr. HARPER. Yes, sir.

Mr. ALEXANDER. That is considering 222,000 cubic feet per second as the whole flow of Niagara?

Mr. HARPER. Yes, sir; that was the basis.

The CHAIRMAN. Suppose that you placed the minimum at the low stage at 180,800 cubic feet per second. What would you say about that?

Mr. HARPER. I believe that at one of the low-water points, where the wind blows the water down, you would notice it with that draft. But at one of these points where the wind lowers the lake, of course the

diminution of the passage of water over the Falls is of such short duration that it should not be considered to any great extent, as was shown by the print shown here by Mr. Romer.

The CHAIRMAN. The report is to the effect that at a very low stage the flow is 180,800 cubic feet, and the report says:

For short periods in midwinter, or with prolonged adverse winds, it has sometimes been even less.

That, I think, is the low-water stage of the normal fall, 180,800 cubic feet, without being influenced by winds.

Mr. HARPER. I have been at the Falls only four years, and I could not judge of anything as low as that, because I have never seen it in a normal flow of the water. You see the points on the readings of these gauges where there are the dips down [indicating on the chart], and you see that they are of very short duration, only twenty-four hours.

Mr. ELLIS. You used the expression "greatly destroy." That is either an unfortunate expression or a very significant one. Taking out that amount of water would not "greatly destroy" the Falls, would it?

Mr. HARPER. I should have said greatly deplete the effect. It would not and could not destroy, because you could not destroy that effect by taking out 3 inches of a sheet of water which is between 3 and 4 feet thick.

Mr. ELLIS. Would you think it would affect it appreciably?

Mr. HARPER. It could be detected by an engineer measuring it, but I do not believe that it would be detected by a tourist, a layman, looking at the Falls from across the river.

Mr. SPARKMAN. Do you believe that these stages of high water come on with great regularity?

Mr. HARPER. They are more apparent in the winter season.

Mr. ROMER. There is a tradition there that we have a high year every seven years, and some old fisherman swore to it in court once. He said that he knew it was so. But I doubt it. It depends on the rainfall and the winds, and so on.

Mr. DAVIDSON. I would like to ask you what difference it would make on the American Falls if 20 per cent of the water was taken—what the difference would be in the depth of the Falls?

Mr. HARPER. In the neighborhood of 4 inches; between 3 and 4 inches.

Mr. DAVIDSON. What do you call the depth of the American Falls?

Mr. HARPER. It is between 3 and $3\frac{1}{2}$ feet.

Mr. DAVIDSON. Twenty per cent of that would be—

Mr. HARPER. It would be one-fifth of the depth of the water; not necessarily of the height going over.

Mr. DAVIDSON. When you take away one-fifth of the water you do not take away one-fifth of the volume of the depth?

Mr. HARPER. No, sir.

Mr. DAVIDSON. How do you figure that out?

Mr. HARPER. That is figured by the formulæ of flowing water over dams, which is constant, taking in the velocity and the height, and so forth.

Mr. ALEXANDER. Supposing that there goes over the crest of the dam 4 feet of water; if you were to take away half of that water how deep would the flow be that goes over the crest? Would it be only 2 feet, or would it be 3 feet, or what?

Mr. HARPER. Giving offhand judgment on it, without having figured it, I should judge that it would be between $2\frac{1}{2}$ and 3 feet.

Mr. ALEXANDER. That is, if you take 50 per cent of the water right out of the main stream, the flow as it goes over the crest of the dam will be reduced not over 30 per cent? If it was 4 feet deep before, it would be about 3 feet deep after you had taken half of the water? Is that it?

Mr. HARPER. Three feet or slightly less. My judgment on it is that it would be 2.8, or two-tenths less than 3 feet. Of course these figures are a mere judgment to a great extent, and not having handled these formulæ I can not produce the figures in my mind.

The first foot up from the top of the edge of the dam does not carry much water. You have got to get up 3 or 4 feet before you get much water from it.

STATEMENT OF JOHN L. ROMER, ESQ.—Continued.

Mr. ROMER. Our rights to take this water have been the subject of consideration by the courts of our State, and I have here volume 70, reports of the appellate division of the supreme court of New York, wherein this subject was up, and Judge Childs wrote the opinion, and he says:

This being so, it appears that the relator, as riparian owner, had the right to take waters from the Niagara River for manufacturing purposes, not interfering thereby with the navigability of the stream, such right being in no sense in the nature of a franchise, but a corporeal hereditament, not depending either upon grant or prescription. This subject is fully discussed in chapter 6 of Gould on Waters (3d. ed.) at page 293, to which reference is made. And this view of the relator's rights is confirmed by the act of 1896, above quoted, which in terms confirms and defines the riparian rights of the relator and is wholly inconsistent with the claim of the relator as to the nature thereof.

In this case, that decision was taken on appeal to the appellate division and confirmed there, and went to the court of appeals and was again confirmed, so that I take it that is the law of the State—that we have the right to take this water.

The CHAIRMAN. The points discussed here were not discussed at any considerable length. This is a question as to the taxing of the property, as to the nature of the property.

Mr. ROMER. As to the nature of our right, whether it was a license or a right of property, and the courts held that it was a right of property.

Mr. DAVIDSON. And yet the legislature, in recognizing and confirming the right of property, limited your right to use your own property?

Mr. ROMER. They did, and we do not make any particular complaint of it, because they allow us to take all that we can, anyhow.

Mr. DAVIDSON. The legislature was inconsistent, then, with itself?

Mr. ROMER. Yes, sir; but as long as they did not hurt us any, we do not complain.

Mr. BISHOP. You would not say that the General Government has not the power to legislate and take away the rights that you already have?

Mr. ROMER. That depends altogether on the reasons for taking it. You have not any right to take our property any more than the State of New York has.

Mr. BISHOP. No.

Mr. ROMER. But you can regulate what we do there in the way of regulation of commerce. Your rights are limited to that.

Mr. Mathews reminds me of something that I had forgotten. The State of New York is itself a riparian owner on the banks of the Niagara River, and its land lies below our land. The State might claim that as a riparian owner we were infringing on their rights. But there the State would not act in its sovereign capacity, but as a property owner. As a property owner the State acknowledges our right to take the water, and so they can not complain on that account, to the full extent of the water which can be drawn through that canal.

I suppose that you are familiar with this case in 146 United States, page 435. Mr. Justice Field delivered this opinion, in which it is said:

It is the settled law of this country that the ownership and dominion and sovereignty over lands covered by tide waters within the limits of the several States belong to the respective States within which they are found, with the consequent right to use or dispose of any portion thereof when that can be done without substantial impairment of the interests of the public in the waters, and subject always to the paramount right of Congress to control their navigation so far as may be necessary for the regulation of commerce between foreign nations and among the States.

This recognizes the fact that the State has the right to dispose of these things, and Judge Field later on in the course of his opinion in this particular case says that the ownership of the bed of the stream carries with it the ownership of the water that flows over it. In this connection I want to call your attention to the fact that the State of New York has conveyed to us, not as a gift, but as a purchase, and taking our money in consideration of the transfer, a portion of the bed of the stream of Niagara River constituting about 9 acres, lying out in the river just in front of the inlet. We own that land. The State has conveyed it to us.

Mr. DAVIDSON. Did you not own it as riparian owner?

Mr. ROMER. No, sir; our right terminated at the high-water mark, and with the right to build docks out as an ordinary riparian owner does. But in addition to that, they have now transferred to us this 9 acres of the bed of the stream.

The CHAIRMAN. It might be well to explain this. The law in the State of New York is that the water in a navigable stream and the bed of the stream both belong to the State.

Mr. ROMER. That is what they claim, yes, sir; and that is the decision of the Supreme Court of the United States, that the title of the land under water belongs to the State. Now, the State has deeded to us this particular part of the bed of the river by purchase and sale, and we have paid for it, and we own it now.

Chief Justice Taney, in 16 Peters, page 410, says:

When the Revolution took place the people of each State became themselves sovereign, and in that character hold the absolute right to all their navigable waters, and the soils under them, for their common use, subject only to the rights since surrendered by the Constitution to the General Government.

And the rights surrendered by the Constitution to the General Government are:

To regulate commerce with foreign nations and among the several States, and with the Indian tribes.

The State of New York, in the exercise of its powers, has declared and confirmed our common law right to take this water, and we think,

therefore, we are not pirates, we are not robbers, we are not engaged in poaching upon the Government domain, but we are doing what we have a right to do, and that right is a property right and the welfare of families, and I might say almost a community is dependent on it, and we do not want it interfered with by Congress, and while Congress in its capacity as sovereign has the right to regulate commerce and so to deal with navigable waters in that way, so far as the interests of commerce may require, I do not think that Congress ought to delegate that right to any one officer of the Government, no matter how wise and good he may be. I think that is a power that should be entertained by Congress to be exercised by its own wisdom, and not delegated to an official.

The CHAIRMAN. The question of policy has been very much discussed here. I know several years ago the power was given to the Secretary of War to pass upon the plans for bridges in certain places, to make a determination of what were obstructions in navigable streams, to demand when bridges are obstructions to navigation that changes should be made in them. That case has been before the lower courts, and went to the Supreme Court once. The argument for giving that power to the Secretary of War is that there is so much detail involved that Congress should be relieved from giving direct attention to all these cases.

Mr. ROMER. That it should be given to him as a matter of convenience?

The CHAIRMAN. Yes; almost as a matter of necessity.

Mr. ROMER. But here you are dealing with the rights of people as to whether they shall or shall not use them, and I think that is something that Congress itself should determine.

The CHAIRMAN. It is different in kind. This power given to the Secretary of War was to say to a corporation having a bridge across a navigable stream "You must change that," "You must put in a draw," or "You must do this or that." It very materially affects the property.

There is one other question which, perhaps, you were intending to speak of in any event, which members of the committee have been considering lately, and that is the right of Congress to exercise control over the nonnavigable portions of a navigable stream. This is a case of that kind. The Niagara River is navigable for over 17 miles after leaving Lake Erie, and I do not know how many miles in the lower portion. It is also navigable just below the falls for a short distance. What have you to say about that?

Mr. ROMER. I do not think Congress has any power or jurisdiction to interfere with the use of those waters at a point in the stream where it does not inure or pertain to the benefit of commerce or navigation. Your power is limited by the Constitution, as I read it, to just that point.

Here we speak of the beauty and the grandeur of the Falls. That is a subject that does not pertain to Congress, and Congress has nothing to do with it. The State of New York might exercise that privilege if Congress could.

The CHAIRMAN. Then you deny absolutely that Congress has anything to say about it?

Mr. ROMER. It has not for that purpose, no, sir; that is my judgment.

Mr. BISHOP. Would it make any difference whether it was an international stream?

MR. ROMER. No, sir; I think not. The ocean is an international body of water.

THE CHAIRMAN. Here is another thing. Can we quite sever a river, and sever out portions where navigation is not possible, and say that one portion is not subject to the control of Congress, while the remaining portion where a boat may run is under the control of Congress? Is not the whole river to be taken as an entirety?

MR. ROMER. Theoretically I think that is so. In a case where the State of New York took some property for the Niagara Reservation by eminent domain, that question was up, and they produced authorities showing that a stream was navigable notwithstanding that it was a fact that there might be a fall or rapids making places where boats could not go; that that did not render it a nonnavigable stream.

THE CHAIRMAN. That is in 37th Hun., or 44th Supreme Court Reports?

MR. ROMER. I think that is the case. But as a practical question that stream is not navigable at this point, and never will be and can not be.

There is a case known as the Speedway case in New York, which bears on this. In that case the legislature of New York attempted to authorize and did authorize the city of New York to construct a speedway along the Harlem River for the benefit and pleasure of people who owned fast horses and nice carriages, and they went to work and constructed the speedway, taking so much of the property on the shore as was necessary by eminent domain.

The commissioners refused to allow to some gentleman his compensation for his riparian rights. He owned 2,500 feet along that stream bounded by the high-water mark. They said: "No; we will not allow you any damages, because it is within the power of the State to use that." Judge Werner, writing the opinion of the court of appeals (and it is a very instructive opinion) at page 144 of the 168th New York, says:

The basis of the theory upon which the trusteeship of the State in our tideways and tide waters is founded seems to be that there are certain rights of navigation and commerce by water which are common to all and therefore paramount to the rights of individuals.

* * * * *

If the State may use the waterways for any purpose whatsoever, then it is no longer a trustee, but an irresponsible autocrat. If it may erect upon our tideways or tide waters any kind of structure that may be suggested by the whim or caprice of those who happen to be in power, it will be possible to destroy navigation and commerce by the very means designed for their preservation and improvement.

* * * * *

If the trusteeship of the State in the tideway exists only for the purposes above enumerated, it would seem to follow that when, in the exercise of its general right of eminent domain, the State appropriates the tide water to uses inconsistent with the trust upon which it is held—that is, to some use not for the benefit of navigation—compensation should be made to the riparian proprietor whose rights have been abridged or taken away. Any other conclusion would necessarily admit the arbitrary and unlimited powers of the State over its tideways and tide waters, for any and every purpose, whether connected with the subject of navigation or not; and no such admission should find its way into our laws.

THE CHAIRMAN. This question does not go as far as that. That was a case in which there was an actual appropriation by the State for purposes of its own.

MR. ROMER. Yes, sir; but it shows the power of the State. The

power of the State itself is limited to taking this thing for purposes of navigation.

The CHAIRMAN. That was where the State was taking it and utilizing it for its own purposes?

Mr. ROMER. Yes, sir; and they claimed that it was not liable to pay, but the court of appeals held that that riparian right was a property right, and the State itself could not take it away excepting it should be in the interests of commerce or navigation, and I say that the General Government stands in that respect the same as the State does.

The CHAIRMAN. Of course, the question is this, just how far does the jurisdiction of Congress extend over that stream? It has been our understanding here that the jurisdiction of Congress was paramount over the navigable streams.

Mr. ROMER. Yes, sir; Congress could perhaps overrule the action of the State in regard to it. When Congress sees fit to exercise its right it has the prior right; but when the State exercises its right and Congress remains quiescent the action of the State prevails.

The CHAIRMAN. There seems to have been no exercise of legislation pertaining to this company of yours, except that act of the State of New York, to which you referred.

Mr. ROMER. No, sir.

The CHAIRMAN. No permit or anything of that kind was given?

Mr. ROMER. We have had some negotiation with the War Department with reference to some cribs put in the river to save the inflow of ice into the canal, and we have erected them by consent.

The CHAIRMAN. Those, however, were erected after you had opened your canal and the water was flowing out from it?

Mr. ROMER. Yes, sir; and in the winter we found that we were subject to obstruction by the inflow of ice, and in order to save embarrassment we erected some slips, and the General Government—the War Department—examined into the matter and stated that it was all right.

The CHAIRMAN. Are there also some cribs about the intake of the Niagara Falls Power Company?

Mr. ROMER. I think within a year or two they have joined with our company to extend the line of cribs.

The CHAIRMAN. Was that by a permit from the Secretary of War?

Mr. ROMER. Yes, sir; and permission has also been obtained from the State reservation at Niagara.

Mr. DAVIDSON. That permit of the War Department was upon the premises that it did not interfere with navigation?

Mr. ROMER. Yes, sir; there is no navigation there, you know—no practical navigation.

The CHAIRMAN. There is a possibility of navigation, however, down to Port Day?

Mr. ROMER. Yes, sir; down to Port Day. You can take a tug at Buffalo and go with safety, if the man in charge is a man of judgment and experience, and enter into our canal.

Mr. MATHEWS. And if there is no break in the machinery?

Mr. ROMER. Yes, if there is no break in the machinery; but we are at the very lowest limit; the very lowest possible point of landing; and it is not as safe a proposition as it might be. I would not care to make it every day.

Mr. ALEXANDER. You are below Schlosser's dock?

Mr. ROMER. Yes, sir.

Mr. ALEXANDER. How much below?

Mr. ROMER. About a mile.

Mr. BEDE. When you pass the dock you put on a life preserver?

Mr. ROMER. Yes, sir; when you pass the dock you put on a life preserver and say your prayers. A sensible man would not go below our intake.

The CHAIRMAN. Is there anything further?

Mr. ROMER. I want to lodge in your minds the fact that not only did the committee of the constitutional convention report that the water which we might draw through our canal, combined with the water which the Niagara Falls Power Company might take, would not do any appreciable injury to the Falls, but the waterways commission, which has made a study of this subject, recommends to the Congress or to the President or somebody that we be allowed to draw 9,500 cubic feet per second, and we want to do that. We have expended a large amount of money, and I want to show you this. Here is a photograph of one of the gatehouses. That shows actual work performed in the construction for the enlargement of our works [exhibiting photograph].

We have spent a good deal of money in enlarging the canal and getting a new power plant in condition for operation. It will be lost entirely and worse than lost if this bill passes in its present form, and if there must be legislation here we ask that there be amendments so that we may be permitted to draw, in accord with the recommendations of the waterways commission, this 9,500 feet required and necessary to meet the demands under the leases and contracts that we have already made, and to justify the expenditures already made.

Mr. LAWRENCE. You would like to have that specified in the bill?

Mr. ROMER. Yes, sir.

Mr. LAWRENCE. If we report a bill, what you ask is that we specify in that bill the amount of water that your corporation can take?

Mr. ROMER. Nine thousand five hundred feet a second; yes, sir. And now there is this further suggestion that I want to make. I do not feel that it is just to American enterprise and American industry and American capital that we on this side of the river should be restricted in the use of the water in the river while there is no restriction on the Canadian side, and I think that the legislation here by Congress at this time is premature. And it would be far better to save this thing by a treaty between the two nations, so that the draft on the Canadian side would be regulated at the same time as the draft on this side is regulated, and better results can be obtained in that way than by this action here.

The CHAIRMAN. It has been considered pretty carefully. This seems to be the consideration. There are a number of concerns going on to develop water power. The treaty is not the matter of a day. In June, 1902, we passed in the river and harbor bill a provision for the creation of a waterways commission to take up this whole subject of the waters along the Great Lakes in connection with members to be appointed from Canada. That commission could not even begin work until, perhaps, May, 1905, within one month of three years after this provision; and you will note that this bill is temporary in its nature—it is only to last for three years.

In view of the numerous demands made for power there and the development that is going on every week, persons being ready to open

up and add to the diversion almost any day, what do you say, Mr. ROMER, as to the desirability of passing a temporary measure—that is all this is—to last until the whole ground can be thoroughly considered and arrangements can be made to secure to enterprise that amount of power which can be given to it without unduly depleting the Falls, and at the same time preserve the Falls?

Mr. ROMER. I would say amen to that if you did not curtail the interests and rights of the people who are there engaged in business now.

Mr. BISHOP. You would not be in favor of granting any further rights?

Mr. ROMER. In view of all the discussion that has been going on over a series of years, I do not think I would.

The CHAIRMAN. Here is the electric company coming in and claiming that they have an unlimited right.

Mr. ROMER. I do not want to be understood as advocating a monopoly. We are not here for that purpose; but we are here representing these interests and these rights.

The CHAIRMAN. You were there before the Niagara Falls Power Company?

Mr. ROMER. Yes; and a great many years ago had demonstrated the practicability of the use of this water in great volume and under high heads. It was the fact of the use of this water in this way in these flouring mills that drew the attention of these people to these falls.

Now, I guess there have been a number of companies organized and chartered, and, by the way, the legislature of New York has introduced bills, I do not know whether they have been passed or not, for repealing a great many of those charters.

The CHAIRMAN. Are all the charters containing grants and franchises set forth in this report of the Waterways Commission? Are there any others besides those set forth there?

Mr. ROMER. I do not know about that.

The CHAIRMAN. It seems from this that the number incorporated is only six in addition to those who have already constructed works. That statement is on page 14 of the report of the Waterways Commission.

Mr. ROMER. There has been no grant of the legislature of the State of New York since 1894. They did pass a bill giving the right of eminent domain, as it was stated this morning, but Governor Odell vetoed it. No effective grant has been made since 1894.

Mr. DAVIDSON. Has there been an act of the legislature to the effect that no future charters will be granted?

Mr. ROMER. There has been something of the sort introduced now, following, I think, the recommendation of the Waterways Commission.

Mr. DAVIDSON. Of course that is only expressive of the sentiment of the people. It does not mean anything.

A BYSTANDER. There is now pending in the legislature a bill for a constitutional amendment prohibiting any further granting of franchises to take water from the Niagara River. I think that has passed and is up to the governor, but I am not sure.

Mr. ROMER. Yes; that is true.

The CHAIRMAN. That would be acted on next November?

Mr. ROMER. Yes, sir.

Mr. MATHEWS. It has to be passed by the next legislature, so that it would not reach the people until the fall of 1908.

Mr. DAVIDSON. It has to be passed by two legislatures?

Mr. MATHEWS. Yes; before it goes to the people.

The CHAIRMAN. There is no tax imposed, as I understand it; no payment which must be made into the treasury of the State or county for this use of power?

Mr. ROMER. No, sir; except as it constitutes property which the assessors, as shown in this case here, are entitled to consider; and our assessments have been growing wonderfully for the last ten years up there.

Mr. ELLISS. Do they tax the franchise, the value of the charter, or the privilege that you have there?

Mr. ROMER. Yes, sir. Now, if the chairman pleases, we have nothing but what we would like to show you. In fact, we have the whole situation up there that we would be glad to show to you, and if I may do so with propriety, I would like to invite this committee or its chairman to visit Niagara Falls, or a subcommittee, and to look the ground over with your own eyes. We will show you all that you want to know, with the aid of the engineers, so that you can act with a greater degree of intelligence than from the briefs and statements that you hear here.

The CHAIRMAN. We appreciate very highly the invitation. I should fancy we would want to go over these figures and reports of the engineers pretty carefully before taking any such action. It might be there would be something there which we could ascertain better from a personal inspection.

Mr. ROMER. We would be glad to take you there and return you to Washington and show you all that is to be seen at Niagara. I want to have the privilege of having printed some facts in relation to this matter and submitting them at a little later day, possibly next week.

The CHAIRMAN. The sooner the better. I hoped we would finish the bulk of the hearings this week.

Mr. ROMER. As soon as we get back to Buffalo I will put the printing machine in operation, and will hope to have this back here by Monday or Tuesday, so that that may be considered in addition to the facts that I have stated in a somewhat incoherent fashion, perhaps, before you to-day. I am obliged to you for your consideration.

(At 1:40 o'clock p. m., the committee adjourned.)

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Washington, D. C., Thursday, April 19, 1906.

STATEMENT OF F. W. WHITRIDGE, ESQ., DIRECTOR OF NIAGARA FALLS POWER COMPANY.

Mr. WHITRIDGE. Mr. Chairman and gentlemen of the committee, I represent the Niagara Falls Power Company, and I suppose I may consider myself entitled to special consideration this morning by reason of the fact that I have prepared fully the remarks which I desire to make before the committee, but upon further consideration I have

decided to cut it all out, and I am going to confine myself to an impromptu statement. I recognize that you gentlemen are acting in pursuance of your public duties, and I feel that I want to put the case before you simply and to ask your consideration in reference to the concession which has been given to the Niagara Falls Power Company.

That company was the first which started to furnish power at Niagara Falls. We did not seek that franchise. We acquired it from others who held it. That we acquired in the ordinary course of business, and we proceeded to the development of the power. We have built two great power houses which are the wonders of the world, second only to the Falls themselves, and we have installed 20 dynamos and a quantity of turbines each with 5 horsepower, so that we are able to develop in the aggregate from 100,000 to 105,000 horsepower, and we are supplying 150 customers. We have expended something like \$30,000,000, I do not mean in securities, but in good round gold dollars which have gone into the enterprise. In addition to that some seven or eight millions of other people's money have been invested to avail themselves of this power.

The report upon which you are proceeding states that our expenditure has been only \$6,000,000. I trust that all of the other recommendations are not as far out of the way as that one, because the amount we have invested is not \$6,000,000 but \$13,000,000. It is further stated by the International Waterways Commission that this company probably thinks that it is inexpedient to undertake to avail ourselves of our additional rights. The Commission stated that we have the right to develop 200,000 horsepower, but having up to the present time only developed 100,000 horsepower, and having, as they say they believe, no intention of doing anything more, that no harm will be done by taking that right from this company. I do not know what credence can be given to the gentleman who did not know the difference between \$6,000,000 and \$13,000,000. I do not think their views are very important.

Mr. LAWRENCE. They said in the report that the investment is said by the management to be only \$6,000,000.

The CHAIRMAN. It is said that \$7,000,000 or \$8,000,000 was invested in other industries established on its lands.

Mr. WHITRIDGE. The fact is as I have stated it. I have been a director of this company from the beginning, and neither I nor any officer of the company, unless it be some local officer, knew that this Commission was taking any testimony. No member of the Commission had appeared there to ask questions, and the fact is, as stated, that the amount of money which has been expended in building these two power houses, in building the canal, and the completion of the tunnel, and the cost of the turbines is about \$13,000,000 and not \$6,000,000.

Mr. LAWRENCE. I want to call attention to the fact that the Commission did not give it as their judgment that the amount was \$6,000,000, so that you do not impugn their judgment but their statement of facts.

Mr. WHITRIDGE. I do not impugn anybody. It is simply an inadvertence and a mistake. What I do impugn is that they say that these people have no intention of proceeding. There is no foundation for any such belief, and I do not conceive how anybody could have come to believe anything of that kind, because anybody who looks at the record of this company will find that the development to the extent

that I have stated was in the mind of the management from the beginning. We built the intake canal of a sufficient capacity to provide water for both tunnels. We bought the right of way for both tunnels. The second tunnel was as much a part of the undertaking as was the first tunnel. In all the literature which has been circulated the second tunnel has always been mentioned. I have here an article from a magazine which was published, in which this second tunnel appears as part of the scheme.

Mr. JONES. I want to take up the question of the statement of the Commission as to the expenditure of this \$6,000,000. You have had a manager of your company at Niagara Falls all the time.

Mr. WHITRIDGE. I always believe that there is ground for everything and that things need explanation. I understand that the Commission was there about the time of the death of our vice-president and that some subordinates must have appeared and given some misinformation in reference to the facts.

Mr. JONES. Some one of your management has always been at Niagara Falls?

Mr. WHITRIDGE. This was a subordinate officer who appeared. That was by reason of the death of the manager and the vice-president.

Mr. JONES. He is the manager at that point now?

Mr. WHITRIDGE. He is not now. There is a man there now.

Mr. ALEXANDER. The president of this waterways commission, Colonel Ernst, is here and can explain that.

Colonel ERNST. The information was obtained by a public hearing after due advertisement, of which notice was given to your company and the principal man of your company was present.

Mr. WHITRIDGE. Who was he?

Colonel ERNST. I do not know his name; but I have his full name.

Mr. WHITRIDGE. I do not care who was present and I do not care what he said. The facts are not as they have been stated. Of course I understand that it is an error. There is no question about that.

The CHAIRMAN. Have you carefully examined this statement in the report at the bottom of page 5 and top of page 6, in which it is stated that "the investment is stated by the managers to be over \$6,000,000 in the power plant and \$7,000,000 or \$8,000,000 in other industries established on its lands?"

Mr. WHITRIDGE. Yes, sir.

The CHAIRMAN. Have there not been seven or eight million dollars in other industries established on the line?

Mr. WHITRIDGE. That is not what I meant. What I meant was that we expended all together on our power plant about \$13,000,000 instead of \$6,000,000, and that in addition to that seven or eight million dollars or some other number of millions have been expended by individuals.

The CHAIRMAN. Outside of your company?

Mr. WHITRIDGE. Outside of our company, and in addition to these \$13,000,000 of which I speak.

The CHAIRMAN. Still further in the report you will note that the object of this statement is to show not what has been expended by outside companies, but by your company. It is not stated that \$6,000,000 was the whole amount expended by your company, but seven or eight million dollars additional.

Mr. WHITRIDGE. Then that is another error, because seven or eight million has not been expended by our company, as it is stated there.

The company as a corporation has not expended that amount of money in that way.

Mr. LAWRENCE. What is your position in this company?

Mr. WHITRIDGE. I am a director of the Niagara Falls Power Company, and I am its attorney.

Mr. LAWRENCE. Did you have any knowledge of this public hearing to which Colonel Ernst referred?

Mr. WHITRIDGE. I never heard of it until two weeks ago, when this report came out, and then I found, as Colonel Ernst has stated, that it was attended by a subordinate officer of our company.

The CHAIRMAN. I hardly think that the members of the Commission are to blame. They gave ample notice.

Mr. WHITRIDGE. I do not blame them.

The CHAIRMAN. They gave two weeks' notice of a public hearing, and it would seem that your officers thought they could appear and answer the inquiries.

Mr. WHITRIDGE. I do not blame them. This took place at an unfortunate time—when our manager and vice-president had just died. There was confusion for two or three weeks thereafter, and that public hearing was attended by two officers of the company, who made a statement, and the attorney of the company says it was submitted, but it does not bear out the other ones.

Mr. LAWRENCE. I do not want to locate the blame. I want to know, as a matter of fact, if the officers had notice of the hearing, which you say they did not have.

Mr. WHITRIDGE. As a matter of fact, I say that some of the officers of our company were there. The officers did not go there until a few days ago, and I have been anxious to have the proper ones appear. I want you to allow me to repeat my statement, because I do not want to have any misunderstanding, and I am sure that the Commission does not want any. This company has expended on its plant at Niagara Falls about \$30,000,000, not in securities, but in good round gold dollars. In addition to that, there have been expended by people at the Falls who have availed themselves of the power seven or eight millions of dollars or some other number of millions of dollars. The statement of the Commission, of which I think I have a right to complain, is that this company is not inclined to develop this additional 100,000 horsepower, and that therefore no harm will be done if the right be revoked.

Mr. JONES. Where is that in the report?

Mr. WHITRIDGE. That, in reference to the second 100,000 horsepower, is paragraph 30, page 3.

Mr. JONES. They say "We believe there is no present intention of doing so."

Mr. WHITRIDGE. This company from 1892, or at an earlier date, certainly from that date, has had the intention of developing the second 100,000 horsepower, and the company later made an arrangement to that effect. The whole financial plan is based on that supposition. We have bought the right of way for that tunnel; we bought the portal for that tunnel; we have built the intake of the canal for that tunnel, which is, in fact, a part of the tunnel, because it takes the water for both tunnels; we have bought 2,000 acres of land, giving us additional riparian rights from which to take water for industries; and that second tunnel, and that right of way, and that land is all inserted

in the mortgage upon which we have raised most of our money in 1891 and a supplementary mortgage in 1898. That is a part of the entire scheme. The second tunnel is as much an integral part as the first one.

We have been the pioneers in this industry. Down to the time when we began with the development of this enormous electrical energy it had not been done anywhere else in the world, and it was not known how it could be done. Our men stayed for months in London conferring upon this scheme. The experiment and experience which we have derived were the foundation, I might say, of the electrical development the world over. In our efforts along this line we have done everything it was in our power to do for the care of the Falls. Our works are a mile and a quarter away from the Falls. The portal of the tunnel is at the water's surface below the Falls, so that any interference with the scenery is thereby avoided. We have done everything possible not to despoil the Falls. Instead of being the despoilers of the Falls we have been the conservators of the Falls.

As to our mortgage, our position to-day is almost exactly like that of a man who would borrow money on a couple of houses. After one house was erected a gentleman might come along and say to him that the second house interfered with his vision and that it would have to be taken down. What effect would that have on the mortgage? It would have the effect of invalidating the security.

Moreover, the rights of this company are based on special statutes of the State of New York, which are accurately stated in the report of the commission. This is the first company which consented to any limitation at all. We were opposed to the reckless expenditure of power at Niagara Falls. We bought out one right and allowed it to expire. We bought another and held it for nine years, or until we were compelled to do something. Up to 1898 we had a right to take an unlimited amount of water. We consented to the limitation of 200,000 horsepower instead of an unlimited amount.

MR. ALEXANDER. What year was that?

MR. WHITRIDGE. That was in 1892. At that time the president and attorney was Mr. Andrew Greene, who opposed the act proposed, because he said it would be a contract with the State of New York and the Niagara Falls Power Company. He stated that it would limit us to 200,000 horsepower. In return we agreed to provide electricity for the reservation for all time. We stand upon the actual contract with the State of New York—that is, the act of the legislature giving us the right, or confirming the rights which we had as riparian owners. We are the principal persons who have developed this power. We are the pioneers and the people of experience, and it seems to me a little short of ironical to say that if anything is to be done that we will be the losers; we, who are the main persons and almost the only persons to be disturbed.

Therefore we think, in consideration of the legal question involved and in consideration of the engineering questions involved and any other questions, we have the right to ask you gentlemen to so amend that act as to give us the rights which the legislature of the State of New York gave us and not to withdraw it, and with a provision inserted, so far as we are concerned we will do everything to further the act if it only gives us what the State of New York gave us. That could be done in the first few lines of the act by inserting a provision "except

as authorized by the legislature and not heretofore repealed by the same." That is all we ask. I think you will find that that will be of some advantage, because it could then be said that the principal persons using the power are the persons who have expended the largest amounts of money; that we would accept heartily, provided that the vested right which we have been given is secure.

I venture to say that that is not an unusual request, and I think that no one—no business man—would say that I was asking anything more than appeared fair and reasonable.

I am not passing any reflections on the Commission. I believe that the statement made as to the expenditure is an error and a thing that might have occurred under the circumstances. I have something which I will submit in writing.

The CHAIRMAN. We have one or two questions to ask you: First, how much per second are you using now, measured in cubic feet?

Mr. WHITRIDGE. We are generating 8,600 cubic feet per second.

The CHAIRMAN. Can you give the measurement of the power?

Mr. WHITRIDGE. It is about 100,000 horsepower.

The CHAIRMAN. You have another tunnel which you intend to construct by the use of which you will develop another 8,600 cubic feet?

Mr. WHITRIDGE. We have another tunnel by which we will use another 8,600 feet.

The CHAIRMAN. Making 17,200 cubic feet, which will create 200,000 horsepower.

Mr. WHITRIDGE. Yes, sir.

The CHAIRMAN. That is the limit fixed by the State of New York?

Mr. WHITRIDGE. That is the limit fixed by the act of the State of New York, and it was proposed by us and accepted in writing with the legislature of the State of New York, and it constitutes a contract with the State of New York.

The CHAIRMAN. Where is that tunnel with reference to the canal and the works of the other companies?

Mr. WHITRIDGE. The map would show it. The second tunnel is shown in the red line.

The CHAIRMAN. Is the canal of the Niagara Falls Power Company above or below?

Mr. WHITRIDGE. It is above.

The CHAIRMAN. What permits, if any, have you received from the General Government, either by legislation or by licenses from the Secretary of War?

Mr. WHITRIDGE. We have, I believe, received several acts from the Engineer Department in reference to water, but I can not tell precisely what they are.

The CHAIRMAN. The reason is that I asked for a list of all the permits and legislation pertaining to this subject, but I do not recall having seen your company included.

Mr. WHITRIDGE. I do not suppose any permits would have been asked for the use of the water from the Government, because we take it that those water rights are ours as riparian owners, and on 2 miles of the shore we have bought the riparian rights from the State of New York and from other abutting owners.

The CHAIRMAN. Where is that 2 miles of frontage? It is not one body of land?

Mr. WHITRIDGE. Yes, practically; it runs from what is called the paper mill upshore for 2 miles. It is shown on the map.

The CHAIRMAN. The red line is the proposed tunnel?

Mr. WHITRIDGE. Yes, sir, of which only the beginning is constructed.

Mr. DAVIDSON. You mean by the intake canal, the canal leading to the mouth?

Mr. WHITRIDGE. Yes, sir.

Mr. DAVIDSON. What are its dimensions?

Mr. WHITRIDGE. It is 75 feet wide at the river's end.

Mr. DAVIDSON. How deep is it?

Mr. WHITRIDGE. It varies from 16 to 17 feet.

Mr. DAVIDSON. How far is it from the edge of the river to the tunnel?

Mr. WHITRIDGE. About 800 feet.

Mr. DAVIDSON. So that the inlet to the canal is really the inlet for the tunnel?

Mr. WHITRIDGE. Yes; for both tunnels.

Mr. DAVIDSON. There has been no work done on the last tunnel?

Mr. WHITRIDGE. Very little; but enough has been done to make connection with the intake canal.

The CHAIRMAN. The intake canal would be some distance off?

Mr. WHITRIDGE. Yes.

The CHAIRMAN. You own the rights for that tunnel?

Mr. WHITRIDGE. Yes; we bought the right of way for that, including the portal.

The CHAIRMAN. What is the fall of this tunnel in existence and the proposed fall in the other tunnel?

Mr. WHITRIDGE. It is about 1 in 7. The actual fall is over the surface at the bottom of the intake canal and the surface of the river below the Falls. Colonel Ernst can tell that better than I can.

Mr. DAVIDSON. Do we understand that the present canal would be of sufficient dimensions to supply both tunnels?

Mr. WHITRIDGE. Yes, sir; the engineers were ordered to build it, so we took their expert advice.

Mr. DAVIDSON. You say the width of it is about 75 feet?

Mr. WHITRIDGE. Yes, sir. I do not know about those engineering questions. My information is gained only by what I have seen.

Mr. DAVIDSON. The intake canal is practically 75 feet wide and 16 to 17 feet deep.

Mr. WHITRIDGE. I should say that it widens at the river. It was built so as to accommodate these tunnels. I do not want to allow of any misunderstanding about its being a humbug as to the second tunnel. It is a part of the scheme. It was all conceived at the same time and all the money was raised with that understanding.

Mr. JONES. Do you know when work will be commenced on this second tunnel?

Mr. WHITRIDGE. It came near being commenced last year, but it was a question of a contract for power. The question of a contract for power seemed to make it necessary and the people could not make up their minds. The fact is that science is not marching with that rapidity and as much certainty as some engineers would lead us to suppose, and whether it is desirable to spend \$50,000 more is a question. Railroad people do not know how they could use power. That is the next greatest use for power.

Mr. JONES. It will be built when the demand for the use of power requires it.

Mr. WHITRIDGE. Give us the demand for the power and it will be built in the shortest possible space of time.

Mr. DAVIDSON. The right of way was acquired when the first right of way was acquired?

Mr. WHITRIDGE. Shortly after that—when the mortgage was made.

The CHAIRMAN. I suppose you have no special views to offer in regard to the amount of water that can be withdrawn from the river without materially injuring the beauty of the Falls? Have you considered that subject?

Mr. WHITRIDGE. I have considered it for fourteen years. I have talked with all the engineers about this business. I have read pretty much everything that has appeared about it. My belief is that there is a good deal of exaggeration as to the damage to the Falls and the likelihood of damage being caused by taking out the water. It would be idle for me to address myself to that subject. I am a lawyer and pretty well versed in most of the questions of the day, but I think that the first thing to find out is to find out what you don't know. I can not tell what is going to happen to the Falls. I think a great many of those who claim that they know do not know. I do not think it is desirable or profitable to go into that.

I suppose that if you want to preserve the Falls as one of the wonders of the world and to abolish the industrial development which has grown up around it, the quickest and best course would be for the State of New York and Canada or the General Government of the United States and Canada to unite and destroy everything there in the way of industrial development and restore the surroundings to the conditions in which they were when the French missionaries first discovered them. I take it that the way to proceed is to condemn as you would with a park in the city of New York. That is, by buying the land and the rights and destroying everything. The way to proceed is to buy out the people and pay them for their expenditures. That is a large question, and it is not proper to go into it here. It is not, perhaps, germane to this bill. I do not want to go into the realm of speculation. There is a great variety of opinion as to the effect of different things on the flow of water over the Falls.

There have been times once or twice a year when we found very appreciable differences in the flow of water. The east wind makes a great difference. Some engineers have told us that in 1842 the American Falls was absolutely bare on account of the east wind, which held back the water of the lake, but those are unimportant questions for the present. We want to stand upon our rights, which we have obtained from the State of New York and on which we have invested our money. That is all we ask. I hope that I have made myself clear to you, and, if not, I want you to give me a chance to do so. That contract is so clear and the rights secured are so certain that we will agree that your act ought to be so amended as to provide that this contract for this tunnel shall be secured to us as given to us by the State of New York.

The CHAIRMAN. Do you feel like giving us an estimate of how much water might be withdrawn without injury to the Falls, or do you regard it as conjectural?

Mr. WHITRIDGE. It is entirely conjectural. I have a telegram from our manager. I do not understand it, and I am sure you would not. There is no use in my going into those things. I might say something that was not true. I want to be particular about things and confine myself to the things which I know. I want to say while Colonel Ernst is here that anybody can get expert testimony to prove anything he starts out to prove. Any lawyer knows that.

Mr. LAWRENCE. From your reading and your consideration of the subject, you are of the opinion that the difficulty which this committee is going to have is the difficulty of determining the amount of the flow of water over the Falls that can be utilized without its impairing the scenic beauty. Do you not think that that is going to be our difficulty?

Mr. WHITRIDGE. No; I do not think so.

Mr. LAWRENCE. What is your judgment about that?

Mr. WHITRIDGE. I would leave it as it is now.

Mr. LAWRENCE. Would you leave it as it is as to the present amount of power now authorized?

Mr. WHITRIDGE. Yes, sir. That is what I ask you to do. I do not see very well how, without going into a jungle of scientific mixture, you can do anything else. It requires the prescience of an archangel to find a way to clear the webs of legal and engineering questions if you undertake to do anything except take the facts as they are.

Mr. DAVIDSON. Then your solution would be to give those who are there all the power they want and not let anybody else have any?

Mr. WHITRIDGE. Not all they want. I do not represent anybody else. There are a great many people, and I have no doubt each one will take care of himself; but I do not want to say anything derogatory of anyone else.

Mr. JONES. What amount do you think you are legally entitled to?

Mr. WHITRIDGE. I know I am entitled to it. The act of the legislature of New York says I am entitled to it.

Mr. DAVIDSON. Without reference to the rights of the General Government, which is superior to the rights of the State of New York?

Mr. WHITRIDGE. We have got a whole lot of books on that subject. They never were in existence before we began to exercise all those rights.

The CHAIRMAN. All what rights?

Mr. WHITRIDGE. The rights the gentleman was talking about, the rights of the General Government as superior to the rights of the State of New York.

The CHAIRMAN. What is your opinion in regard to that—whether the Federal Government or the government of the State of New York has the exclusive control there?

Mr. WHITRIDGE. I should say that the State right was undeniable.

The CHAIRMAN. We would like to have full copies of any permits given by the Federal Government to your company.

Mr. WHITRIDGE. We shall be glad to file copies of anything which we have. I do not think that there are any permits given by the War Department except permits for cribs or things which would interfere with possible navigation. There are several such, but I can not see why any other permits should be given, because the State of New York has always been understood to be the owner of the property as well as the possessor of the sovereignty.

The CHAIRMAN. In what year was that act passed, 1896?

Mr. WHITRIDGE. Which act.

The CHAIRMAN. The act under which you claim your rights.

Mr. WHITRIDGE. In 1892.

The CHAIRMAN. Is there not a later act?

Mr. WHITRIDGE. There was some act passed in 1898. There was an act passed in 1892, and there were some acts passed in 1893 confirmatory thereof, and I also think there was an extension of the right to issue stock or to change the proposition from stock to bonds.

Mr. BEDE. The contract with the legislature of the State of New York was not in 1898.

Mr. WHITRIDGE. The contract with the legislature is contained in the act passed May 12, 1892.

The CHAIRMAN. That is the principal act?

Mr. WHITRIDGE. That is the act which, for the first time in the history of the world, limited the use of water by anybody who had theretofore obtained the right to use it. That limitation was proposed and accepted by us.

The CHAIRMAN. Is there a limit to the life of your franchise?

Mr. WHITRIDGE. Yes; fifty years.

The CHAIRMAN. What do you understand is to be done with it after that?

Mr. WHITRIDGE. I shall not be here then.

The CHAIRMAN. Have you not given some consideration to that subject?

Mr. WHITRIDGE. I have considered an enormous number of subjects and I might take up your time profitably with them, but I do not think that you expect me to enter into a discussion of esthetic questions.

The CHAIRMAN. Would not that act terminate the right?

Mr. WHITRIDGE. I think so.

The CHAIRMAN. There is no other question except that.

Mr. WHITRIDGE. I should say if the right to use water depends on the act of the legislature, and not upon the right as a riparian owner, such act would expire with the rights conferred thereby. Any legislation granted expires at the time fixed in the act.

The CHAIRMAN. Is there any other gentleman here representing the Niagara Falls Power Company?

Mr. WHITRIDGE. No, sir; all we ask is that you give us what the State of New York has given us. I will submit some memoranda.

The CHAIRMAN. The next gentleman is to speak for Buffalo.

STATEMENT OF W. H. GRATWICK, ESQ., PRESIDENT OF THE BUFFALO CHAMBER OF COMMERCE.

Mr. GRATWICK. Mr. Chairman and gentlemen of the committee, I have the honor to represent the Chamber of Commerce of the city of Buffalo. The city of Buffalo is very much concerned about the proposed legislation, and it is chiefly for the city of Buffalo that I want to speak this morning. Allow me to say, in the first place, that you are doubtless aware that the State of New York is a unit on the proposition of the preservation of Niagara Falls. I do not think there would be a dissenting voice in the State of New York on that proposition. Probably the most interested community in the State of New York would be the city of Buffalo, because of the presence of Niagara Falls at our doors. It means a great deal to us. It brings us thousands of visitors every year, and it brings us additional trade and prosperity.

In addition to this it is our one main pleasure resort, and its proximity makes it available to the laboring people, the clerk and the business man. Whenever a man has an hour or two off he can get on a "trolley" and go down to the Falls. It is available every day in the year. In other words, if the preservation of Niagara Falls presents itself to the rest of the country in an altruistic phase, to Buffalo it is a vital and important matter, and I will say, therefore, that if the city of Buffalo felt that there was the least danger of a serious detriment or impairment of the beauty of the Falls, that the people of that city as a whole and the chamber of commerce as a body would be the first to stand behind you in your efforts to preserve them; but I do not think there is any danger. There has been nothing to indicate it up to the present time.

It is a matter of history that in 1842 the American Falls were dry, and some twelve or fifteen years ago it is said that some people walked across the river. That is a question of the prevalence of an east wind. I understand that it is practically a matter of history. An authentic account is given in history back in 1840 when the American side was dry, and it is a thing which I think can be authenticated by reference to the papers of Buffalo when people walked across the American side. That is not a new situation. It is well known that a strong wind will affect the navigation of the entire river and that it will lower the water as much as 18 inches. It is the same way at the Falls. A strong east wind will create a noticeable and perceptible difference in the flow of water.

The CHAIRMAN. We take a peculiar interest in listening to you because you represent this locality. I do not think, however, that you wish to be understood as saying that the Falls should be reduced to a condition such as is produced by the prevalence of an east wind, when a person can walk across the American Falls.

Mr. GRATWICK. I think it is impossible to make an accurate statement of that. It depends on the time when you happen to go there. I could take this committee on days when you would say that the Falls were ruined, and again I could take you there when you would not notice the difference in the amount of water going over the Falls. I do not think that so far as the amount of water taken out is concerned that it has made any appreciable difference. You must take the average.

The CHAIRMAN. I think we must consider the average.

Mr. GRATWICK. I do not think there has been any effect produced.

The CHAIRMAN. With the withdrawals now being made or proposed—

Mr. GRATWICK. I have never seen any myself, and I never saw anybody in whom I had any confidence who would say that any effect had been made.

The CHAIRMAN. What do you understand is the amount that is now being withdrawn?

Mr. GRATWICK. I understand in a general way that the Niagara Power Company is generating approximately 100,000 horsepower. I do not think that they are generating as much as they might. On the Canadian side they have rights, the rights in all amounting to some 500,000 horsepower, counting the amount that has been granted on both sides of the river.

The CHAIRMAN. What practical suggestion have you to make to this committee if things go to the full extent that the different parties on both sides of the river are seeking to create by the diversion of the water?

Mr. GRATWICK. You will find that there are companies holding charters who have done nothing whatever to make those charters good. They hold charters, but they have made no expenditure of money. I should think, as a citizen of Buffalo, that it would be perfectly fair to ask those companies who have such rights that they be withdrawn, especially if they have spent no money.

Mr. BEDE. I thought that you stated that these dormant charters had been repealed.

Mr. GRATWICK. No, sir; the bills are pending to repeal some four or five different charters which have not been exercised; but, speaking as a citizen, I think that the property rights which have been given in good faith should not be interfered with in any drastic way. In some cases millions of dollars have been expended.

Mr. HUMPHREYS. I understand that you agree with the ideas of the Secretary of War as to those permits, where they have been given to individuals or corporations and where they are now producing power?

Mr. GRATWICK. I am not a lawyer. I suppose that I should be familiar with the phraseology of the bill. But the point that I want to make is that it would hardly seem to me right to curtail any of the rights of concerns that are acting in good faith. I do not want to speak of the matter from the standpoint of the power companies. In Buffalo we are interested in the supply of electricity.

Mr. LAWRENCE. You represent the Chamber of Commerce?

Mr. GRATWICK. I do.

Mr. LAWRENCE. Has the Chamber of Commerce taken any official action with reference to this dispute in that matter?

Mr. GRATWICK. Yes, sir. We had a meeting on last Saturday and we adopted strong resolutions.

Mr. LAWRENCE. Have you a copy of those resolutions?^a

Mr. GRATWICK. I regret to say that I have not. I also represent the city of Buffalo, and I have resolutions passed by that city. Buffalo is vitally interested in getting electric power. During the life of the Niagara Power Company, Buffalo has looked to that company for her supply of electricity. The lighting of the city is in the hands of this concern. Buffalo is interested in allowing the Canadian power companies to make power. It is a vital matter, and we think that competition is the life of trade.

We can not get competition except through the Canadian power companies. Only recently that competition has made itself felt. The Buffalo Power Company have sold to the city light at \$56, whereas the former price was \$75. And to private consumers they now charge 9 cents per kilowatt, as against 12 cents formerly. There is a tangible result so far as the city of Buffalo is concerned by allowing the Canadian Power Company to come in. This is an important matter, and I think it is an important matter for the whole country. A number years ago—I speak as a lumberman—the lower peninsula of Michigan was doing a tremendous business in its saw mills. Thousands of men were employed and millions of dollars were paid in wages. The timber supply of Michigan was cut off, and it is now brought

^a See copy of resolutions at close of Thursday's hearing.

over from Georgian Bay in Canada. At that time we had a duty on Canadian lumber, but the Canadians have taken that off. And now they charge a duty. They put an export duty on their lumber cut from the Crown lands.

The effect of that has been that the mills of this country have moved to Canada. I was greatly surprised to learn from Mr. Schwab of the industries that have gone to locate in Canada with American capital and employing skilled American labor to the extent of almost 50,000 men. That is purely the result of the retaliatory policy adopted both by this country and by Canada. At one time the Canadians were pretty much at the mercy of our manufacturers, but they have put a duty on Canadian goods, and the conditions have changed. Canada has the raw material. This raw material we need. Canada puts an export duty on that and prohibits exporting, and in consequence American industry suffers.

The CHAIRMAN. That is an argument that belongs to the Committee on Ways and Means.

Mr. GRATWICK. No; your bill proposes to prevent Canadians from exporting power. Even if the Canadian power were allowed to come into Buffalo, it would put us in the hands of but one concern.

The CHAIRMAN. Which concern?

Mr. GRATWICK. The Canadian Power Company. We are on friendly terms with them; but there is nothing like competition.

The CHAIRMAN. Is any other competition developing?

Mr. GRATWICK. Yes. The Hydraulic Power Company.

The CHAIRMAN. Does the General Electrical Company want to come in?

Mr. GRATWICK. We will let them make their own argument.

The CHAIRMAN. You want 40,000 cubic feet per second to be drawn from the American side, and full competition with Canada besides.

Mr. GRATWICK. I am placed in a delicate position in that respect. I do not want to urge any proposition that would be hostile to America or to the Hydraulic Power Company, but I think that it would be eminently fair to leave the rights as they are. The hydraulic company has been selling to this country, and the Niagara Power Company has also been selling.

The CHAIRMAN. Do you mean that the prices on the American side have not been reasonable since Buffalo has been utilizing the power?

Mr. GRATWICK. No.

The CHAIRMAN. And the only way in which it can be made reasonable is by importing power from Canada?

Mr. GRATWICK. I think that the only reasonable way is by competition, and the only source of that competition, and the only one that we can get, is from Canada. And, further, I am convinced that we have an increasing number of industries in Buffalo. They are coming every month; they are investing millions of dollars; they will go where they can get the cheapest power, and you will find that if we prohibit the importation of electrical power from Canada a large proportion of these industries will locate in Canada with their American capital and labor.

The CHAIRMAN. Then you favor an unlimited importation of Canadian power?

Mr. GRATWICK. I do.

The CHAIRMAN. At the same time you say that the city of Buffalo is desirous that the cataract be preserved.

Mr. GRATWICK. Yes, sir.

The CHAIRMAN. Nevertheless, you are in favor of an unlimited importation of power?

Mr. GRATWICK. Absolutely.

The CHAIRMAN. There is a line of cables being constructed to Rochester, Syracuse, Erie, and Cleveland?

Mr. GRATWICK. Yes, sir.

The CHAIRMAN. Is it not perfectly clear that if this unlimited importation be allowed through this increasing demand for power that it is only a question of a few years when the waters of the Niagara River will be entirely diverted for that purpose?

Mr. GRATWICK. Absolutely not.

The CHAIRMAN. Is not that a natural conclusion?

Mr. GRATWICK. I think not.

The CHAIRMAN. The committee would like to hear you on that point.

Mr. GRATWICK. The fact of the prohibition of the importation of electrical power from Canada is not going to stop that power being generated in Canada nor prevent the location of industries on the Canadian side.

The CHAIRMAN. We would have no control over the question except on the American side.

Mr. GRATWICK. That is right.

The CHAIRMAN. Suppose that regulations were adopted in the United States looking to the preservation of the Falls, do you think that Canada would go on diverting the water in such a way as to destroy the cataract?

Mr. GRATWICK. It is doing that very thing. They have got three concerns on the Canadian side, and every one of them take every cubic foot of water they are entitled to. And they will fulfill their contracts to the letter, and the result will be that they will generate from 300,000 to 400,000 horsepower there. And that would lead to the location of industries on the Canadian side that ought to be on our side.

Mr. LAWRENCE. I suppose, as a matter of fact, that while this cheap power has been developing at Niagara Falls, the people have not been getting the advantage of it so far as prices are concerned.

Mr. GRATWICK. They are beginning to now.

Mr. LAWRENCE. They have not done so heretofore.

Mr. GRATWICK. No; not generally.

Mr. LAWRENCE. Your claim is that the only way they can get that advantage is by Canadian competition.

Mr. GRATWICK. There is nothing like competition in all kinds of business.

Mr. ALEXANDER. Buffalo has had the same advantage as to prices that Niagara Falls has?

Mr. GRATWICK. Oh, yes.

Mr. ALEXANDER. Is it not a fact that the great outlay of money and the evolution of the application of electricity has been cheapening it to the people?

Mr. GRATWICK. Decidedly so. But I think that the main item in that cheapening is the competition from the Canadian concerns.

The CHAIRMAN. For how long a time has this power been furnished by the Niagara Falls Power Company?

Mr. GRATWICK. It must have been for a dozen years or more.

The CHAIRMAN. What is the amount used in Buffalo?

Mr. GRATWICK. They are selling about 85,000 horsepower.

The CHAIRMAN. They have lowered the price of power at Buffalo?

Mr. GRATWICK. Oh, yes. The city and suburban lines are using it.

Mr. DAVIDSON. What do they pay for arc lights?

Mr. GRATWICK. Seventy-five dollars.

Mr. DAVIDSON. How long have they been paying \$75?

Mr. GRATWICK. Since 1898.

Mr. DAVIDSON. How does it compare with the price in Philadelphia, Baltimore, New York, and other cities?

Mr. GRATWICK. It is about the average price.

Mr. DAVIDSON. So that by reason of this cheap power produced at Niagara Falls, power to the city of Buffalo is not a great deal cheaper than it is in other cities?

Mr. GRATWICK. It is not yet, because there has been only one source from which we could get it. But we are now going to have this additional Canadian source, possibly. Last week the price was reduced from \$75 to \$56.

Mr. DAVIDSON. Was that brought about by competition with Canadian power?

Mr. GRATWICK. Yes, sir. That is the most vital thing to the city of Buffalo to-day. Do not understand me as advocating giving to every company all the theoretical and technical rights they have. But the city of Buffalo will stand behind you in any proposition which will give us more power at a cheaper rate. We believe in giving the present companies their rights where they have made expenditures in good faith. Most of these Canadian companies are not producing power to any great extent, as I understand the matter. But they are putting in a great many millions of dollars in their plants, and within the next few months (or perhaps weeks) they will be generating a large amount of power. It would be unfair, it seems to me, to cut them off simply because they are a month or two late.

The CHAIRMAN. Can you give us a list of the concerns that have those rights?

Mr. GRATWICK. The best way would be to write to the speaker of the legislature of the State of New York, and you can get from him copies of the bills introduced repealing some four or five charters, the keeping alive of which can well be spared.

The CHAIRMAN. What amount of power would Buffalo use derived from the Falls?

Mr. GRATWICK. That would be mere guesswork. While we now use 25,000 horsepower, I would not be surprised if we could use 200,000 horsepower.

The CHAIRMAN. If furnished cheaper it would lead to an enormous demand?

Mr. GRATWICK. Yes, sir; to an enormous demand. The logical point is Niagara on the American side. It has got water facilities. We will dredge the Buffalo River at our own expense, and make a 20-foot tunnel. We will develop the frontier on the American side.

The CHAIRMAN. Rochester would expect a very considerable amount of power?

Mr. GRATWICK. I suppose that she would be entitled to what she could bid for. Of course she is generating her own power.

The CHAIRMAN. A number of intervening towns between would expect a great deal of power?

Mr. GRATWICK. Undoubtedly.

The CHAIRMAN. There is consumed at Niagara Falls, perhaps, 50,000 horsepower. Syracuse is endeavoring to get power, and the railways between Buffalo and Syracuse need power. Now, do you say to this committee that those demands for power from those cities, beginning with Buffalo, can be supplied to the extent they desire and the Falls still be preserved as a scenic spectacle?

Mr. GRATWICK. I do. I think that can be done because the amount of power consumed now has no appreciable effect on the Falls.

The CHAIRMAN. How much is being generated now?

Mr. GRATWICK. One hundred and thirty thousand to 135,000 horsepower.

Mr. ALEXANDER. Have you considered that question sufficiently to give a categorical answer to the chairman's question, How can we limit the supply on the Canadian side?

Mr. GRATWICK. You can limit by agreement with Canada. You can do it by having Canada abrogate such charters as have not been entered upon in good faith, just as the State of New York is to abrogate the charters of four or five concerns. It is immensely desirable that this should be done. Let Canada join and do something similar to what New York is doing.

Mr. ALEXANDER. Who will speak for Canada?

Mr. GRATWICK. I do not know. I suppose that she would not object.

The CHAIRMAN. Do you believe that if regulations were adopted in this country which would prevent the desecration of the Falls that Canada would continue to remove water on the Canadian side to an indefinite extent?

Mr. GRATWICK. I do not think so. I think that Canada is waking up to the situation. But Canada, I understand, has specific contracts with concerns to generate power, among them the Niagara Falls Power Company, the Ontario Power Company, and the Electrical Developing Company. I am not, however, familiar with those matters. Those concerns have put in improvements in their plants for generating power to meet their contracts. I think that Canada has reached a point where she will not let additional concerns come in. There have been additional concerns with rights to take power, but such concerns have not entered on their rights. I think that Canada would cut those off.

Mr. LAWRENCE. I understand you to say that if we keep this provision in the bill, prohibiting the importation of power from Canada, it will prevent Buffalo from getting cheap power.

Mr. GRATWICK. There is not the slightest question about it.

Mr. LAWRENCE. In that opinion you are representing the ideas of the Chamber of Commerce of Buffalo?

Mr. GRATWICK. I am. I am president of the Chamber of Commerce of Buffalo, and I speak authoritatively. That was one thing about which we were most urgent and solicitous; and that is one thing to which the city council and the citizens of Buffalo are opposed, namely, the limiting or prohibition of the importation of Canadian power.

Mr. LAWRENCE. And yet there is not much use in our trying to limit the amount generated on the American side if Canada be permitted to go to the full extent to that side.

The CHAIRMAN. You have expressly stated that you were in favor of unlimited rights being allowed.

Mr. GRATWICK. That is true. Yes.

Mr. BEDE. Up to the limit of their rights?

Mr. GRATWICK. Yes. In connection with the abrogation of unused charters in this country I think that immediate steps should be taken with the Dominion to abrogate some charters over there, and hold the proposition down to the point where it now is, and do not let the entire amount be diverted except so far as it has been authorized in good faith and acted on.

Mr. LAWRENCE. Do you think that it would do any good to limit the amount of power?

Mr. GRATWICK. We have sent American industries over there in that way.

Mr. DAVIDSON. You do not mean unlimited rights, but limiting them to their grants?

The CHAIRMAN. What do we understand about that?

Mr. GRATWICK. I do not suppose that this country could take cognizance of what Canada has done to that extent. This country should abrogate the charters which have not been exercised by arrangement with the Dominion of Canada.

Mr. JONES. Don't you think that the putting of a limitation in this bill would lead the Dominion of Canada to shut off further grants over there?

Mr. GRATWICK. I do not know that it would have any particular effect on Canada, but Canada is as fully alive to the question as we are, and I think that it would not be a difficult matter to take up the question diplomatically with Canada so that she would abrogate the permits which have not been used.

Mr. JONES. Do you think that the interest of the people is sufficiently aroused as to the desirability of preserving the scenic beauty of the falls?

Mr. GRATWICK. Yes.

Mr. ALEXANDER. Buffalo has expressed through the Chamber of Commerce and the common council that she would be entirely satisfied to let new power be generated by existing corporations on the Canadian side, and prohibit the bringing in of any further power than the present capacity.

Mr. GRATWICK. Buffalo has not gone into it to that extent. I do not think that that would be fair.

CITY CLERK'S OFFICE, CITY AND COUNTY HALL,
Buffalo, April 18, 1906.

To whom it may concern:

I hereby certify that at a session of the board of aldermen of the city of Buffalo, held in the city and county hall on the 16th day of April, A. D. 1906, a resolution was adopted, of which the following is a true copy:

FROM THE MAYOR.

BUFFALO, April 16, 1906.

As your honorable body is aware, there is pending in the Congress of the United States a bill introduced by Representative Burton, which I am informed by the president of the Chamber of Commerce would, among other provisions, prohibit the importation of electric power to Buffalo from Canada.

I believe this feature of the proposed measure to be adverse to the interests of Buffalo. The present power monopoly expects to bring over power from Canada. Other power companies have similar plans. The hope of Buffalo for a still larger power supply not only for the monopoly, but for other power companies, rests in a measure on power from the Canadian side.

The president of the Chamber of Commerce informs me that a hearing on the Burton bill will be held on Thursday, at which time the Chamber of Commerce will appear by representatives, and *I recommend that the city of Buffalo, in so far as the bill prohibits the importation of power, disapprove and transmit its disapproval to the proper authorities at Washington.*

Respectfully, yours,

J. N. ADAM, Mayor.

Received, filed, and recommendation adopted.

And that at a session of the board of councilmen of the city of Buffalo, held in the city and county hall, on the 18th day of April, A. D. 1906, the action of the board of aldermen in passing said resolution was duly concurred in.

And I further certify that said resolution was submitted to his honor the mayor of said city of Buffalo, by whom the same was approved on the 18th day of April, 1906.

Attest:

[SEAL.]

JOSEPH C. BERGMANN,
Deputy City Clerk.

THE CHAIRMAN. We have this resolution, and we have heard from some excellent gentlemen about their rights on this side and the benefits to be derived by diverting power from the Niagara River—great benefits to the whole country, etc.—and you now bring from the common council a resolution in which they are styled a power monopoly, and it is said that the only way to make this monopoly behave itself is to admit power from Canada.

MR. LAWRENCE. Up to this time we have heard the representatives of the monopolies, but now for the first time we are hearing a “representative of the people.”

MR. GRATWICK. As to Canadian power being allowed to an unlimited extent, I do not mean quite that. I mean that the power generated in Canada should be allowed to come into this country; and yet while in a sense it is unlimited, yet practically it is limited. There are three concerns competing in Canada.

THE CHAIRMAN. Do you know how much water they have a right to withdraw above the Falls?

MR. GRATWICK. In the vicinity of 350,000 horsepower.

THE CHAIRMAN. That is 30,000 cubic feet per second. Probably more than that.

MR. GRATWICK. I do not speak for the power companies in Canada.

MR. ALEXANDER. I want to ask you a question which is, perhaps, a repetition of what I have already asked other gentlemen. The Canadian Niagara Power Company has a capacity of 9,500 cubic feet per second, and the Ontario Power Company has a capacity of 12,000 cubic feet per second, the Electrical Development Company 11,300 cubic feet, and those are the three Canadian power companies which intend to bring in their product to the United States.

MR. GRATWICK. Yes. Those three.

MR. ALEXANDER. Now, if those companies are given the right to bring their product into the United States, as I understand that you, as a representative of the chamber of commerce, think it would be entirely satisfactory?

MR. GRATWICK. Yes, sir.

MR. ALEXANDER. And that the bill limiting the importation of the product to that amount would be entirely satisfactory?

Mr. GRATWICK. Yes, sir. If this committee saw fit to cut that out or join with Canada to prohibit concerns on this side or on the Canadian side, the city of Buffalo would be agreeable to it.

The CHAIRMAN. Do you mean to say to this committee that so large a share of the water drawn from the Niagara River would not seriously diminish the beauty of the Falls?

Mr. GRATWICK. I never looked at it in cubic feet.

The CHAIRMAN. I use cubic feet diverted, because the reports have employed that method of computation. Of course you can not let everyone take all the water he wants. The question for us to decide is how best to subserve the interests of industry and at the same time preserve the scenic grandeur of the Falls.

Mr. GRATWICK. How many cubic feet do you allow for 100,000 horsepower?

The CHAIRMAN. About 12 to 1, or 12,500, depending on the fall of the water.

Mr. GRATWICK. Twelve thousand five hundred cubic feet for 100,000 horsepower.

The CHAIRMAN. Each cubic foot averages, approximately, twelve or thirteen horsepower.

Mr. JONES. Eight thousand six hundred cubic feet.

Mr. GRATWICK. Eight thousand six hundred cubic feet to 100,000 horsepower. Then, they have, approximately, 500,000 horsepower, or rights to that amount on the American and Canadian sides. That estimate, I imagine, is approximately correct.

The CHAIRMAN. It is by no means correct.

Mr. GRATWICK. Why not?

The CHAIRMAN. You have already enumerated something over 60,000 cubic feet.

Mr. GRATWICK. There is 100,000 generated by the Niagara Power Company on the American side.

The CHAIRMAN. They claim 100,000 additional horsepower.

Mr. GRATWICK. They have not done anything on that so far as we know. There is 60,000 horsepower for one company and 200,000 horsepower for Canada and 200,000 horsepower for the Electrical Developing Company, making 43,000 cubic feet.

The CHAIRMAN. That is only a part of it.

Mr. GRATWICK. No, I think not, with your permission. That is what these companies are entitled to.

Mr. HUMPHREYS. We heard this morning that one company was entitled to 100,000 horsepower or more, and that, as a matter of fact, they expended a great many millions of dollars to develop that.

Mr. GRATWICK. The amount of horsepower which I, as a layman, understand has been exercised in a bona fide way on both sides is 100,000 horsepower by the Canadian Power Company—

The CHAIRMAN. What is the aggregate?

Mr. GRATWICK. About 500,000 horsepower.

The CHAIRMAN. The right is already claimed to develop 342,000 horsepower on the American side and 415,000 on the Canadian side, making a total of 757,000 horsepower. That amount allows nothing for the General Electrical Company or the Niagara, Lockport and Ontario Company on the American side, and includes only 415,000 on the Canadian side. So that your estimate is altogether too small.

Mr. GRATWICK. I have given you the estimate that nine out of ten business men in Buffalo give, and I think that it is the proper one. You will find that that is the claim.

The CHAIRMAN. The estimates as to the quantity of water to be diverted materially affect the question before us.

Mr. GRATWICK. I do not think that you have included all the propositions. Your proposition is, how much are the existing contracts going to take away from the river. One company has taken 8,600 cubic feet, and that is the estimate for the production of 100,000 horse-power. Another company takes 3,800 cubic feet; that is, the Hydraulic Power Company. Now, those two sources have not made any appreciable difference in the amount of water flowing over the Falls. I do not think that you will find in Buffalo, or anywhere else, any estimate that it has made any difference so far.

Mr. HUMPHREYS. It has not made any difference in the Falls nor has it made any difference in the prices to the people.

Mr. GRATWICK. It is beginning to. At the Falls you can get electrical power for \$16, as I understand, and \$20 is a reduced price as compared with the production of power by steam. It is as 20 to 75.

Mr. LAWRENCE. Has the chamber of commerce or the city of Buffalo taken any action as to the amount of water which it thinks it is safe to authorize to be diverted from the Niagara River?

Mr. GRATWICK. No, sir.

Mr. LAWRENCE. Have they taken any action in reference to the prohibition of the importation of power from Canada.

Mr. GRATWICK. Yes, sir. I want to make you understand the difference that exists, generally, with respect to concerns which have put a great many millions of dollars into their plants in good faith, and have water rights based on those concessions. And that is a matter in which the city of Buffalo is interested. And on the other side, possibly, there are just as many concerns which have theoretical rights who have not done anything but sell stock; and the stock and franchise are owned by promoters who have no responsibility and whose only aim is to find somebody to hold up.

The CHAIRMAN. We should be glad to have a list of such concerns—those that are owned by mere promoters.

Mr. GRATWICK. There are a number of franchises which have been kept up, but with them I am not familiar. I can tell you the bona fide concerns. Those are the Niagara Power Company, on the American and Canadian sides, and the one we call the Hydraulic Company. Then, on the Canadian side, there is the Ontario Power Company.

The CHAIRMAN. Are there any other companies on the American side except those two?

Mr. GRATWICK. Those are the only two which have rights.

Mr. ALEXANDER. And what about the General Electric Company?

Mr. GRATWICK. I will let that company speak for itself. I am not interested in the General Electric Company, but I am interested in the city of Buffalo. If anybody has any rights which he thinks are valuable let him contend for them. The city of Buffalo is interested in concerns doing business in a bona fide way. Those are the only ones about which I know anything.

The CHAIRMAN. In other words, as regards the Niagara Power Company. You only recognize the use of one tunnel by that company?

Mr. GRATWICK. I do not speak as an expert, of course. They have only one tunnel, which is about 85,000 horsepower. There is an impression in Buffalo that they get about 100,000, but they do not. They really are not taking as much water from the river as has been claimed. As to the amount of power they generate I am in the dark.

The CHAIRMAN. What amount of power is developed by the Hydraulic Power Company?

Mr. GRATWICK. I have an idea that it is in the neighborhood of 40,000 horsepower.

The CHAIRMAN. Is that their limit?

Mr. GRATWICK. I understand that to be the limit of the canal. They have been claiming the right to use 9,500 cubic feet per second.

The CHAIRMAN. That would be over 100,000 horsepower. I do not think that you quite appreciate the magnitude of the concerns that claim rights to use the water of the Niagara River. Your estimates certainly do not compare at all with those presented to us during this hearing by representatives of the various companies. They claim in the United States at least twice the amount that you enumerate. There are 17,900 cubic feet which you do not seem to recognize at all.

Mr. GRATWICK. To what company do you refer?

The CHAIRMAN. To the General Electric Company. There is 4,000 feet, as you state, which is now used by the Niagara Hydraulic Company. The company claims the right to use 9,500 cubic feet, which would create over 100,000 horsepower.

Mr. GRATWICK. They have a canal. That canal is full of water, and has been ever since I can remember. They have been generating power. I have understood that it was about 40,000 horsepower. It may be more. I do not know what rights they could have to generate power. At the present time the impression is prevalent in Buffalo that it is about 40,000 horsepower.

The CHAIRMAN. You come here with recommendations from the board of trade and the city council of Buffalo. Now, this committee desires to know whether you fully understand the situation.

Mr. GRATWICK. I think I do.

Mr. LAWRENCE. You represent the chamber of commerce, and their idea is that they want to import power from Canada. That is one point. They do not express their views as to the amount of power generated and how much shall be generated.

Mr. LORIMER. On that point I want to get clear. I was under the impression from what he said that he was in favor of permitting as much power as they claimed the right to generate, but in his last expressions he has rather indicated that he represents the people who favor permitting them to generate more power than they are now generating.

Mr. GRATWICK. I did not mean to be considered in that way. As I said before, there are concerns—notably on the Canadian side—which generate a small amount of power because their plants are in process of construction. Within a few months they will be generating up to their full capacity, or, certainly, as much as can be expected.

Mr. LORIMER. Are you in favor of permitting them to generate power up to their full capacity and transmit that to the United States?

Mr. GRATWICK. I am, absolutely.

Mr. LORIMER. Are you in favor of permitting them to generate the

full amount of their capacity, or the capacity which they claim they have when they finish their works on the American side?

MR. GRATWICK. Well, I should say—now I am speaking as a private citizen—that I would want to be guided by the legal aspects of the matter. If I make claims—

MR. LORIMER. Suppose they have rights under their charters from the State of New York to generate all the power that they claim they have, are you in favor of permitting them to do that?

MR. GRATWICK. It seems to me that it is a matter of moral right.

MR. LORIMER. In addition to that, the General Electric Company claims the right to use 7,000 cubic feet per second, or 200,000 horsepower. Are you in favor of permitting them to do that?

MR. GRATWICK. I spoke somewhat sparingly of the General Electric Company. I do not know that the General Electric Company under the charters it may recently have acquired have done any bona fide work. They have bought some franchises which for a number of years they have hawked around the country, but can not utilize them. I think that nothing has been done on them. I could see no harm in keeping them out.

MR. LORIMER. Do you favor permitting all these companies about which we have been talking utilizing the amount of water required to generate power up to their capacity, whether it destroys the beauty of the Falls or not?

MR. GRATWICK. I would give them everything to which they are honestly and legally entitled.

MR. LORIMER. Whether they destroy the beauty of the Falls or not, are you still in favor of it?

MR. GRATWICK. Yes, sir; for this reason—and I regret to say it—I think that this movement has started a little bit too late. The time to start the movement was before the franchises were given and when there was no serious danger. If the Niagara Power Company had not been given any franchise this question would never have arisen. They have entered the business in good faith and have invested their money in good faith. I should greatly regret to see the Falls endangered by reason of this franchise or by reason of the investment of money, but I think that the country is morally bound to keep faith with them. In addition to that, as a layman, I do not think that the amount of power which has been authorized so far is going to make any appreciable difference.

MR. LORIMER. In expressing yourself as you have as to the sentiment of the people of the city of Buffalo, do you think that you represent that sentiment?

MR. GRATWICK. I think I do. I think that there is no question about it.

MR. ELLIS. You went further than the resolution of the common council. Do you think that the resolution of the Chamber of Commerce goes as far as you have gone in your statement, when you say that you believe that the rights—whatever they are—should be granted to these companies?

MR. GRATWICK. Yes, sir.

MR. ELLIS. Whether the Falls be harmed or not?

MR. GRATWICK. I am speaking of the city of Buffalo, and the prohibition of the importation of electrical power.

Mr. ELLIS. Your interest is industrial. First and foremost you want electrical power?

Mr. GRATWICK. Yes; if the city of Buffalo thought that the Falls were in danger——

Mr. BEDE. The beauty of the Falls or the business of the city?

Mr. GRATWICK. It is decidedly a matter of business to the city of Buffalo. It is altruistic to the rest of the country.

Mr. HUMPHREYS. You said that you regretted to say that the Government had started too late, and yet you say that you do not think that the beauty of the Falls is going to be impaired. What do you mean by that?

Mr. GRATWICK. That would seem to be an anomalous statement, and yet it is true. I spoke of the advisability of it. I think that it would probably be better in a theoretical view, so far as the scenic beauty of the Falls is concerned, if there were no industries there. Then that would be the ideal condition.

Mr. LORIMER. You say that you think that the agitation has started too late to prevent the use of any power already authorized. You have a certain amount of power authorized, and you have got to live up to that. Possibly it would be better if there were no power authorized at all. The State of New York and the Dominion of Canada have got contracts authorized.

Mr. DAVIDSON. You mean the State of New York. You do not mean the General Government.

Mr. GRATWICK. I understood that the chairman had made reference to some permits that had been granted by the Government.

The CHAIRMAN. I merely asked whether any had been granted.

Mr. LAWRENCE. As I understand, the Chamber of Commerce of Buffalo has expressed its opinion in favor of the importation of Canadian power. It would be of interest to this committee to know the amount of water that you think ought to be diverted for commercial purposes.

Mr. GRATWICK. I appreciate your courtesy. I think as a fairly accurate statement that I meant to say that 100,000 horsepower by the Niagara Falls Power Company is the amount generated. The Hydraulic Power Company generates about 40,000, but they have rights in excess of that on the Canadian side. The Niagara Falls Power Company has 100,000, and the Ontario Power Company has 200,000, and the Electrical Development Company another 100,000.

Mr. LAWRENCE. But neither the chamber of commerce nor the city council have acted formally except on the resolution as to the importation of power.

Mr. GRATWICK. That is the main thing.

Mr. LAWRENCE. It is the only thing they acted upon?

Mr. GRATWICK. Except that the chamber of commerce protested against doing away with vested rights.

Mr. LAWRENCE. Is that in the chamber of commerce resolution?

Mr. GRATWICK. Yes, sir.

Mr. LAWRENCE. I did not know that.

Mr. GRATWICK. The resolutions were framed on the basis of the amount of power which bona fide companies would have a right to generate.

Mr. RANDELL. As to the question of vested rights, if it becomes, in the judgment of this committee, desirable that the scenic effect of the Falls should be preserved, had we not better pay for some of the

vested rights by exercising the right of eminent domain, as is done in many instances? The question is whether the Government ought not to pay something in the case of vested rights, if it becomes desirable.

MR. GRATWICK. It would be a question which would depend largely on the amount involved and the benefits accruing by such expenditure.

MR. DAVIDSON. Do you think that the authorization to take as much as 40 per cent of the flow of the water would affect the scenic beauty of the Falls?

MR. GRATWICK. I do not know. I see by this report of the Waterways Commission that it gives the mean level of the Lakes. I have read this report. It gives amount of flow at the mean level of the Lakes at over 222,000 cubic feet per second. According to my figures, that would give from 43,000 to 45,000 cubic feet, which is now authorized.

MR. DAVIDSON. I was not pressing the question as to your judgment as to the amount authorized. There has been testimony given here, and I ask you as a layman, and as a man representing the city of Buffalo, all interested in the preservation of the beauty of the Falls, if you think a 40-per-cent fall of the water over the crescent were to be diverted it would interfere with the beauty of the Falls.

MR. GRATWICK. I would dislike to see it go up to that proportion. It would then become a serious matter. According to this report there seems to be from 43,000 to 45,000 cubic feet authorized; 20,000 and 40,000 are quite different. I think there would be a serious question in allowing a diversion of one-fifth of the water going over the Falls. I have no doubt that I have been there at the Falls when a great deal more than one-fifth of the water had been blown back, but I would not notice any difference.

THE CHAIRMAN. The amount, according to these charters, is fully set forth in the report of the Commission as 60,900 feet. That is the amount that it is claimed is authorized to be diverted. That does not include the 14,000 feet which the Chicago Drainage Canal desires to divert, making 74,900 cubic feet. In addition, the General Electric Company is asking permission to divert 17,900 feet, making in all 92,800 feet, which is considerably over 45 per cent of the flow. There is still another company claiming the right to divert 10,000 cubic feet. Now, you say that you do not mean to interfere with vested rights, and yet here are claims the validity of which must be considered, and here is the demand of Chicago, which is deserving of as much attention as the development of power. That is the proposition before us. It is a very much smaller amount which you mention. The trouble, in brief, is more serious than you contemplate.

MR. GRATWICK. No, sir. I think that I appreciate the seriousness of the situation, but it is possible that you may have inadvertently added to those figures the rights of concerns that may not have any definite rights. Have you looked into the claim of the General Electric Company?

THE CHAIRMAN. That was extensively argued before us on Monday.

MR. GRATWICK. They undoubtedly know what they have.

THE CHAIRMAN. They make a proposition that deserves careful consideration, which, if acted upon, would benefit the country as much as any which has been presented. They would develop a very much larger amount of power in proportion to the quantity of water diverted. In the next place, it is taken from a part of the river where it does

not withdraw so large a share of water from the American Falls as do the other companies. And, again, they offer to give a very large concession for the privilege—a concession that amounts to several millions of dollars.

Mr. GRATWICK. That is a serious factor. The industrial development is worthy of serious consideration when you consider the development of power at \$16 as compared with \$75 when produced by steam. It is very important, and you have a very large proposition which involves a tremendous saving.

The CHAIRMAN. That is worthy of consideration. I take it that you do not favor as a mere commercial proposition the allowing of power to be used that entails the destruction of the beauty of the Falls.

Mr. GRATWICK. I do not think that you can draw a hard and fast line. You want to arrive at a happy medium where the powers and grants can be allowed to be exercised, and where the Canadian power will not have to be prohibited, and yet leave the Falls practically as they are to-day. When you put the figures at 60,000 cubic feet you are stretching it a little bit, I fear.

Thereupon, at 12.30 o'clock p. m., the committee adjourned to meet the following day at 10.30 o'clock a. m.

RESOLUTIONS OF BUFFALO CHAMBER OF COMMERCE.

Whereas there has been introduced in Congress a bill which in substance prohibits the diversion of water from Niagara River except upon revocable permits, to be granted by the Secretary of War; authorizes revocable permits for the diversion of water from said Niagara River for the creation of power, but only to individuals, companies, or corporations which are now actually producing power from said water, and to them only to the amount now actually in use by such individuals, companies, or corporations, and which prohibits the transmission of electric power into the United States from Canada when such power is generated from the waters of Niagara River or any of its tributaries, except as to power now being brought in; and

Whereas the generation of electric power at Niagara Falls, both on the American and Canadian side, has been and will be of inestimable advantage for the development of industrial enterprises at Buffalo and Niagara frontier, as well as to cities and towns adjacent thereto, as well as for the electrification of present steam surface railroads; and

Believing that reciprocal trade relations with Canada should be strongly encouraged and no legislation hostile to such an ultimate arrangement be enacted; and

Believing if the aforesaid bill is enacted into law, it will seriously retard the growth of Buffalo and Niagara frontier in commerce and industry and prevent the completion of industrial projects already contemplated; therefore be it

Resolved, That the Chamber of Commerce of Buffalo emphatically protests against the enactment of any bill into law which prohibits the importation of power from Canada generated from the waters of Niagara River as being wholly unnecessary and unwise and prejudicial to the public interests of Buffalo and the Niagara frontier, as well as retarding the completion of large commercial and industrial projects now contemplated, and preventing the further development of industries requiring large units of electrical power; and be it further

Resolved, That the chamber of commerce respectfully urge the members of Congress from the city of Buffalo and State of New York to use every honorable means to defeat the passage of any such legislation; and be it further

Resolved, That a copy of this resolution be transmitted to the members of Congress from the State of New York and the members of the House Committee on Rivers and Harbors.

Attest:

F. HOWARD MASON, *Secretary*.

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Friday, April 20, 1906.

The committee met at 10.30 o'clock a. m., Hon. Theodore E. Burton in the chair.

The CHAIRMAN. We have two hearings this morning; we have the transmission company from Canada, and also a hearing that has reference to the rapids below the falls.

**STATEMENT OF FRANKLIN D. LOCKE, ESQ., COUNSEL, ONTARIO
POWER COMPANY.**

Mr. LOCKE. Mr. Chairman, I have spent some time since the adjournment yesterday in familiarizing myself with the record, so that I need not detain you long, and I need not thrash over any old straw in what I have to say.

I appear here for the Ontario Power Company, of Niagara Falls. From the record I think there are certain facts that have been established sufficiently for the guidance of this committee. I think, in the first place, it stands unquestioned as an unquestioned fact that the fee to the Niagara River easterly from the international boundary ever since the grant of Charles II to the Duke of York is in the State of New York, holding it in trust for the people of that State and for the riparian owners; that the fee on the other side is vested in the Dominion of Canada, subject to the like trusts; that the Federal Government has not and never has had any interest in that fee or any authority regarding the premises, except such as it gets from its right to control navigable rivers. Secondly, I think it is established that the State of New York and the Dominion of Canada, exercising their respective police powers properly, have granted to these different corporations rights under which they seek to divert certain waters immediately above the cataract, restoring them to the channel immediately below the cataract; that those rights have been the subject of investments of American capital to the amount of many millions of dollars; that the rights and privileges granted, and lawfully granted, to those corporations have been made the subject of mortgage, upon which issues of bonds have been based, and that those issues to the amount of millions of dollars are held by American investors to-day from Boston to Chicago, and from North to South, and all are affected by the action you may take here. Those investments on the part of the owners of the property have been made in good faith; the investments and the bonds have been made in good faith, and they are entitled to the protection of the law.

Thirdly, I think it is clearly established that the Niagara River between the points where water is taken from it and the point at which that water is restored is not navigable, and never has been navigable, and that the Federal jurisdiction extends over that property only to this point; that it may, under its general authority, enter upon that stream and make a navigable channel from the waters above to the waters below the falls. It is clearly proven here that no diversion of water which has yet taken place has in anywise interfered with the navigability of Niagara River, and I maintain—and I understand that the committee consists of fifteen lawyers and

two gentlemen—I maintain before you lawyers, the Federal jurisdiction rests upon that fact.

Mr. JONES. You do not consider the other two members of the committee of any importance?

Mr. LOCKE. I take their word for it. I have no information except what they give me.

Mr. BEDE. I merely suggest that those two members who are not lawyers should pass upon the facts.

Mr. LOCKE. Now, fourthly, I say this without fear of denial from anybody who is familiar with the facts: That the diversion of water up to the present moment has not in anywise interfered with the scenic view which you gentlemen are so anxious to protect. To the present moment—I have known those falls for forty years—they are as perfect as they were forty years ago. It is unquestioned, again, that there can be considerable diversion of the waters without interfering with the scenic view which you are so anxious to protect.

To what extent the additional diversions can be made is a question for engineers, and about which men may differ, but a considerable amount evidently can be diverted, and that is fairly established here, without any interference.

I think it is fairly established, further, that there is no intention upon the part of the Federal Government to make that stream navigable where it is not now navigable, and the power of Congress under the regulation of commerce and under the guise of an attempt to regulate commerce is being invoked here to do something which has no relation to commerce, which has nothing to do with the navigability of the stream, but which is simply intended to accomplish the preservation of the scenic view, and might with equal propriety be used for the preservation of a view in Central Park, New York.

Now, to advert to my company. If those things be established, the principal interest that I have in this bill is the third section, which prevents the importation of electricity into this country. Having obtained our charters for entering into contracts with the Canadian authorities pursuant to the statutes under which we are organized, having paid our money, we began the work of developing electricity. We think we have the most perfect plant in the world to-day for that purpose. The question came up about a market, and we looked to the United States, in part. Our contracts provide that to the extent of one-half of our production that product shall be marketed in Canada, if the opportunity exists, and we have to make any contract on this side subject and subservient to our Canadian agreement to furnish them the power on the other side. We are permitted by the law of our being to import to this country anything that we do not have to sell in Canada. We applied to the War Department to find out how we should get across the river, and the War Department advised us that they had no jurisdiction, that it did not interest them, that where we proposed to cross it was not navigable—it was not regarded as a navigable stream. So we strung our wires across the river. Some thoughtful man had in mind the question of customs. We applied to the Treasury Department. We were advised by the Treasury Department that electricity was not subject to the customs law. We went ahead with our construction, and we made a contract with the New York corporation, which is authorized by the laws of the State of New York to make that contract, by which

we agreed to sell them 60,000 horsepower delivered at the international boundary.

The CHAIRMAN. What is that company, Mr. Locke?

Mr. LOCKE. The Niagara, Lockport and Ontario Power Company, represented here by Mr. Cravath. We began the fulfillment of that contract. We have been delayed in our work in part, or they have been delayed in taking it. We are willing to deliver a large quantity. General Greene will give you the statistics, tell you what we can do. He will tell you better than I the amount of our expenditures, the capacity we have developed, the capacity we have developed in part, the capacity we are ready to develop. Now, out of the clear sky comes this bolt. To-day perhaps we are importing into the United States 1,200 horsepower delivered at Lockport, 12 miles distant. You say, "Stop right here; although you have made a contract to deliver 60,000 horsepower, although you have made your construction for that purpose, and although you have built your line to the international boundary pursuant to the law and your charter, stop here, with your 1,200 horsepower, and leave yourselves liable to the obligations of your contract."

Mr. BEDE. Did you understand the Treasury Department to rule that this electricity by its nature was not anything taxable or merely that it is not taxed under existing law?

Mr. LOCKE. I think the latter, that there was nothing, no law, under which you could tax it. I think it is nontaxable, however. The custom law is a proceeding in rem, and I do not know how you can hold electricity or sell it for nonpayment of duty. It would take the ingenuity of a good lawyer to decide how you could handle electricity under a tariff law.

Now, we have gone on in good faith and have built our works. We have put out our securities; we have sold our bonds; we have spent millions of dollars besides in order to carry out these contracts, and for the purpose of doing something which you can not do directly. I maintain you shut us off, or try to shut us off. I submit with all confidence that this bill is not upon the right lines. I have seen the opinions of the lawyers which have been submitted to you, and everyone interested in this case. They are among the leading lawyers of the American bar. You will hardly find four standing higher than the four ex-Attorney-Generals who have given you their opinion—that the only way to proceed here to accomplish the purpose you have in view is on the treaty side of the Government.

Mr. HUMPHREYS. Where is that opinion you speak of?

Mr. LOCKE. It is among your files. There is the opinion of Mr. Taft; there is the opinion of Senator Knox; there is the opinion of Secretary Moody, and there is the opinion of John W. Griggs. This is the document [exhibiting document].

Mr. JONES. Has it been filed with our committee?

Mr. LOCKE. It has.

Mr. JONES. That is the first I have heard of it.

Mr. LOCKE. Senate report 1611.

A BYSTANDER. It is a printed document, a part of the proceedings.

Mr. ALEXANDER. General Greene, will you give the number again?

Mr. GREENE. Calendar No. 1562, Senate report 1611. It contains the opinions of Mr. Moody, Mr. Knox, and Mr. Griggs.

Mr. LOCKE. Their opinion is to the effect that that stream is not navigable at that point, and that except for the purpose of taking hold of it and making it navigable the powers of Congress are not exercisable. Nobody knows where the treaty power of the Government is, so far as I know, individually, and they say that the proper place to accomplish what you desire to accomplish is on the treaty side of the Government.

I insist, therefore, in conclusion, that upon the record, upon the facts that are established, upon the admitted situation there is no intention upon the part of the Government to make that stream navigable where it is now nonnavigable, upon the good faith we have shown and upon the moneys we have expended by authority of law, upon the doubt that exists with regard to this bill in the minds of these independent, efficient, and capable lawyers, most capable lawyers, under all these circumstances, and insist that this bill ought not to be reported out, that some other procedure should be adopted. I think these companies and your committee, or a subcommittee, could get together and do something—I do not know what. Public sentiment, of course, is in favor of the preservation of Niagara Falls.

Mr. HUMPHREYS. These gentlemen you speak of do not deny the power of Congress to enact the section that you particularly complain of?

Mr. LOCKE. No. I claim that is unconstitutional from another ground, and I will close with that. I claim that it is unconstitutional under the ninth section of the first article, which obligates you to give fair treatment, like treatment, to all ports. You can not take coal to Canada and make electricity and bring it back to the United States as a commercial proposition; you have to take electricity as it is generated there by water power and bring it to the United States. Electricity generated at Niagara Falls by the law of its being can only be imported into this country at one of two places—Niagara Falls or Buffalo. It has to be within a short radius there of 25 miles; it can not be carried, it is dissipated. The known state of the art, the results of invention up to the present time, are not such as to permit it to be carried across Lake Erie or Lake Ontario, or around Lake Erie or around Lake Ontario, and so it has come right into one of those two ports.

Mr. DAVIDSON. Why not? Why can you not transport it?

Mr. LOCKE. You can not carry it so far.

Mr. DAVIDSON. They are carrying it three times that far.

Mr. BEDE. Could they not put it in storage batteries and bring it in?

Mr. LOCKE. Not as a commercial proposition.

Mr. DAVIDSON. In California they are carrying it farther than the distance from Niagara Falls to Detroit.

Mr. LOCKE. You have more information than I have about that.

The CHAIRMAN. The statement was made in a discussion on the floor of the House that in California it is being carried over 200 miles.

Mr. LOCKE. Suppose it be; as soon as you make a difference between those ports and other ports of the country, they can take it from Shawinigan over to Plattsburg and deliver it, and so Plattsburg is favored. There is a point on the boundary line to which it could not be taken; there is some port where it could not be admitted, and so long as that is so this is unequal under this clause in the Constitution.

The CHAIRMAN. Yet your interpretation of that clause of the Constitution is that it does not apply merely to commerce, but to all facilities arising from communication with other countries.

Mr. LOCKE. Well, I start out with the proposition that electricity could not be the subject of commerce, but the more I have thought about it the more I think commerce means intercourse under the authorities.

The CHAIRMAN. You give it a broader interpretation.

Mr. LOCKE. I think a fair construction of the authorities is that the right to regulate commerce covers something more than merchandise.

Mr. HUMPHREYS. It is the subject of larceny, is it not?

Mr. LOCKE. Electricity? I think so. I think under certain conditions you could steal it, just as you could steal gas; and still it is not gas; it is a strange thing. They tell me that you can take a detached wire and it contains as much electricity as it ever can. You put a dynamo behind it and it will drive it out, but the electricity is there all the time; it adds nothing to the weight of the wire. You see it simply by its results. I thought it was not commerce at first, but I am inclined to think it is commerce, and I don't know where the power of Congress would end with regard to it, but whatever is done, according to my interpretation of the Constitution, must be applicable to the entire United States, to every port in the United States, and you can not discriminate between ports that could be reached from Niagara Falls and the ports that could not be reached from Niagara Falls.

The CHAIRMAN. Several questions occur to me, Mr. Locke.

What is the amount of power which it is intended to be transmitted by this company from Canada?

Mr. LOCKE. That is dependent upon the Canadian demand. There is a firm sale of 60,000 horsepower subject to that Canadian demand and subject to our obligations to meet it. The company have the further option on 120,000 horsepower more if they exercise that option within a reasonable time, also subject to the Canadian demand.

The CHAIRMAN. That would make 180,000 horsepower?

Mr. LOCKE. 180,000 horsepower; yes.

The CHAIRMAN. What is the number of cubic feet per second diverted by this company?

Mr. LOCKE. Mr. Chairman, if you will let General Greene, who is here, answer those questions of the mathematics of the thing it will be better. He has more exact knowledge than I on the subject.

STATEMENT OF PAUL D. CRAVATH, ESQ., COUNSEL, NIAGARA, LOCKPORT AND ONTARIO POWER COMPANY.

The CHAIRMAN. Yours is the company organized for the transmission of power created in Canada?

Mr. CRAVATH. Not primarily. It is organized for the utilization of power on the American side.

Mr. Chairman and gentlemen, you have heard so many lawyers already and you know so much law yourselves that I assume you are more interested in hearing from General Greene and Mr. Herschel, who are familiar with the technical side of this question, than from me, and so I will confine myself to a very brief statement with reference to this matter, as to the position of my clients, the Niagara,

Lockport and Ontario Power Company, which I shall for brevity call the Lockport company. And I shall proceed on the assumption, which I do not think sound, that Congress has the power to enact some such legislation as this. But I think this assumption is sound, that there is a strong demand on the part of the people for adequate means to preserve the scenic beauty of Niagara Falls, and that in some way or in some form that wish of the people will be finally given expression; that if not by an act of Congress or if not by a treaty, perhaps by appropriate legislation in the State of New York or in Canada.

We assume that whatever form this remedy finally takes, a sense of justice will dictate a reasonable regard for the vested interests which will be affected by any action upon this subject. I shall therefore present as briefly as I can the position of my clients.

This company was organized under the laws of New York in 1894. That year it acquired by a special act of the New York legislature the grant of the right to take water from the Niagara River for power purposes, for distribution in New York State, at a point about 10 miles above Niagara Falls, near Tonawanda Creek. The grant contemplated that the water should be conducted from that point by a canal about 14 miles long to Lockport, and there the power plant should be located. From that point the water would be carried, after its utilization in the power plant, by a stream called Eighteenmile Creek, to Lake Ontario. Therefore this plan differs essentially from any others before you, in that the water is taken fully 10 miles above the falls. The grant to this company gave the company ten years in which to begin work. Within that ten years the work began in substantial form, and has since been prosecuted.

The enterprise acquired new life about ten years ago, when its control passed to a party of gentlemen headed by Mr. George Westinghouse, of Pittsburg. They formulated extensive plans for the development of this power plant on a large scale. They soon found, however, that to adequately use this power would involve several years of time for the construction of a necessary plant and canal and the enlargement of the river which would be the tailrace. They were very much impressed with the immediate necessity for a large amount of cheap power in northern New York and with the possibilities of the utilization of this power as an encouragement to the commerce and industry of that part of the State. They accordingly began negotiations with the Ontario Power Company. Mr. Locke's plant, which had then neared completion, a large power plant on the Canadian side, the company having power to market a large proportion of its power on the American side. They determined rather than to wait three or four years until their own plant could be completed to at once make a contract by which they could have a large amount of this Canadian power for use on the American side. That contract, which was made about a year and a half ago—

Mr. LOCKE. Late in 1904—

Mr. CRAVATH (continuing). Gave to the Lockport Company the right to use 60,000 horsepower and imposed upon it the obligation to take 60,000 flat within a reasonable period of time. It gave it the option to take two further lots of 60,000, or 180,000 in all, and subject to certain restrictions imposed by the contract. They acquired

the exclusive right to market the power of this company in the United States. Throughout, however, the acquisition of this right was considered as part of the original plan for the utilization of the power at Lockport under the original grant.

Having thus agreed to take 60,000 horsepower firm within a specified period of time, the company proceeded to make the necessary arrangements to market its power. It created a mortgage for \$5,000,000, it issued a large amount of its stock, it has actually sold \$2,500,000 of its first mortgage bonds, and has entered upon a series of expenditures, now almost completed, calling for \$4,000,000, in the construction of its distributing system in New York. By reference to the small map at the corner of the larger map you will see the distributing system. Under the contract we take the power at the international boundary line near the Suspension Bridge, and defray the entire expense of distributing that current on the American side. Our transmission line extends from that point on the river, near Lewiston, to Lockport, which becomes, so to speak, the distributing center. From there we have a transmission line extending south to Buffalo. Then the main transmission line extends east, and from Lockport to Rochester, and from Rochester to Syracuse; and that main line has many branch lines leading to many neighboring cities and towns. The entire mileage of our distributing system is 42 miles, and that entire system is either constructed or in process of construction. Soon our \$4,000,000 will have been expended entirely upon the creation of that system. We have purchased a right of way for the entire system, costing over \$1,000,000, and the balance of our expenditure is in the transmission line itself, the converter house, and the various appurtenances.

MR. BISHOP. What is the greatest distance you propose to carry it?

MR. CRAVATH. One hundred and sixty miles; that is, from the power house to Syracuse.

Of course, in order to make this enormous investment valuable we have had to make contracts for the sale of our power, and we have entered into contracts for the sale of 40,000 horsepower, or, to be more accurate, contracts which entitle the consumers to take 40,000 and which require them to take a minimum of 15,000. But the conditions are such that in all human probability the entire 40,000 horsepower will be taken within a very short time after we begin the active distribution of current, which will be within a few months. We have such customers as the Lackawanna Steel Company, represented here by Mr. Wickersham, whose enormous plant at South Buffalo depends exclusively upon our current for its power. We have the New York Central Railroad Company, that has agreed to use our power exclusively for its electric lines. It has a very extensive system of electric lines west of Syracuse. The industries which have made arrangements to utilize our current involve hundreds of millions of dollars. Indeed it may be said that the whole industrial activities of that part of New York State center around the utilization of the current of this company and other companies engaged in similar business. We have entered into firm contracts for the sale of this power, and we have also in every important case subjected ourselves to heavy penalties in case we fail to deliver this power within a reasonable time.

We respectfully submit that we have been justified in proceeding with these expenditures—first, our expenditures in preparing to develop and beginning the development of our Lockport plant, and, second, in utilizing this Canadian power. We have been incorporated by the only two governments that seem to have jurisdiction over us—the Canadian government and the government of New York State; we have received the necessary authority from those governments. We have assumed that those governments were interested, as you are, in preserving Niagara Falls, and were convinced, as we believe they are, that an amount of water which would be diverted by the operations thus far authorized would not materially affect the scenic beauty of Niagara Falls. And we submit we had no reason to count upon Congressional legislation. We knew that the river was not navigable where we took our water; we knew that no question of interstate commerce or navigation was involved, and we submit we have exercised every precaution that we should have exercised or should have been exercised by prudent men in building up this business and creating this situation, in which we have already embarked practically \$4,000,000 of money, and with respect to which we are already committed to much larger investments.

Now, of course, the enactment of such a bill as you propose, if it could be enforced, would ruin my client; it would destroy this investment, because this investment of \$4,000,000 is absolutely of no value except for the purposes of utilizing the power which we have purchased from the Ontario Company and the power which we in time expect to generate at our Lockport plant. Indeed, if you should forbid and should have the power to forbid the importation of power, it would ruin my client, because it would be ruined long before it could create its plant at Lockport, inasmuch as its obligations to deliver this 40,000 horsepower will soon accrue, and it will be ruined by the enormous penalties imposed by those contracts in case it failed to carry the contract out.

I want to point out also that while we have invested a substantial sum in the development of our power enterprise at Lockport, this investment of \$4,000,000 in our transmission line is also a step in the development of the Lockport enterprise, because the real estate which we have purchased, and many other provisions which we have made, are sufficient for a distributing system, not only to utilize this Canadian power up to 180,000 horsepower, but also to utilize and distribute our power generated at Lockport, and so a very substantial part of our investment in this \$4,000,000 transmission line is fairly incident to the ultimate development of our Lockport plant.

Now, as to the amount of water we are likely to divert and as to the effect our enterprise can have upon the Niagara River, as to the effect of the diversion of the water by the Ontario company, Mr. Green will speak with more precision than I can. I shall therefore only speak of our Lockport company. Unlike the other companies, we take our power 10 miles above the Falls.

The CHAIRMAN. You are now speaking of the diversion you make on the American side?

Mr. CRAVATH. Yes; 10 miles above the Falls on the American side. The result will be that the water we take will be taken proportionately from the American Falls and the Canadian Falls. While our grant from the legislature of New York imposes no limit upon the amount of

water we can take, there is a practical capacity on account of the limit of our Eighteenmile River, which is to be our tailrace, so we can not utilize more than 200,000 horsepower; that is the limit imposed by nature. To generate that amount of power will require about 9,000 cubic feet of water per second, to be taken at the head of our canal, near Tonawanda Creek. That water will be taken from the river 10 miles above the Falls and the take of the water will be distributed proportionately from the water going over the Canadian and over the American Falls.

Mr. DAVIDSON. I understand that you propose to develop 200,000 horsepower from 9,000 cubic feet per second.

Mr. CRAVATH. Yes, sir; that is the expectation, on account of the fall of the river there.

Mr. BEDE. That is more than the other companies get.

Mr. CRAVATH. More than any of the others except the General Electric Company. I think they have a still greater horsepower in proportion to the cubic feet they get. The efficiency of a cubic foot of water depends on the fall.

Mr. ALEXANDER. How many feet of fall do you have?

Mr. GREENE. It is from 6 to 300 feet.

Mr. CRAVATH. The amount of power obtained there for the amount of water taken is very much greater than any of the other companies except under the so-called Love grant. If we take 9,000 cubic feet of water per second, roughly speaking, a thousand or 1,200 feet will come from the American Falls, and the balance will come from the Canadian Falls, that being the proportion substantially.

Mr. ELLIS. Will you state that proportion again?

Mr. CRAVATH. If we take 9,000 feet I understand that we would take from a thousand to 1,200 feet from the American Falls and the balance would come from the Canadian Falls.

Mr. DAVIDSON. Eighteenmile Creek flows into Lake Ontario?

Mr. CRAVATH. Yes.

Mr. DAVIDSON. How far east of Lewiston?

Mr. CRAVATH. About 20 miles. Whatever would be the effect of the taking this amount of water at Tonawanda Creek, it can not materially affect the Niagara River; it can not affect it at all for the purposes of navigation. Under the existing practice the river is deep from Tonawanda Creek to the Falls, usually 17 feet deep in the channel, and I think for the entire distance there is a channel of substantial width, never less than 14 feet in depth. The few inches of water which we would take would not affect navigation. The navigation below Tonawanda Creek is confined to pleasure boats and a few local freight boats, the draft of those boats varying from 4 to 9 feet. Nothing we could do multiplied several fold would affect that portion of the river for the purposes of navigation.

The CHAIRMAN. That question has been somewhat discussed in the hearings. Mr. Cravath, do you limit the jurisdiction of Congress to existing navigation?

Mr. CRAVATH. I should say not, Mr. Chairman. I assume that Congress has authority to pass such laws as are reasonably necessary to meet the probable requirements of navigation in the future.

The CHAIRMAN. Is not the power really absolute?

Mr. CRAVATH. I should say not, Mr. Chairman.

The CHAIRMAN. Is it not the exercise of a political power? That is a question which assumes a great deal of importance in a discussion of this problem here. If you have any views on that subject we would like to hear them.

Mr. CRAVATH. Without having made a close study of that subject, my feeling is that the mere fact that the United States Government takes control of a navigable stream for the purpose of protecting navigation does not give it control of that stream for all purposes.

The CHAIRMAN. Perhaps that question is not involved, but just how great is its control for purposes of navigation? Another question is involved. Suppose there are three sections of the stream, the upper and the lower sections are clearly navigable, and there is an intermediate section in which there are rapids; is the jurisdiction of Congress ousted from that intermediate section simply because there is no actual navigation there? If the regimen of that intermediate section would affect the available water for navigation above and below, or might affect those sections, would not the jurisdiction of Congress extend over that intermediate section also?

Mr. CRAVATH. I should be disposed to concede that Congress has jurisdiction over this portion of Niagara River in so far as it may be necessary to protect navigation in adjacent waters.

The CHAIRMAN. That is the intermediate section?

Mr. CRAVATH. Yes. If, for illustration, our enterprise would so diminish the water in Niagara River as to affect the navigable highway above I should think you would have jurisdiction, but we are advised—on that I can not speak very intelligently, not being an engineer, but we are advised—that no amount of water which we can take, coupled with the withdrawal of water by all the other companies that have rights, could have an appreciable effect upon the utility of the river and the adjacent waters for navigation purposes.

Mr. LAWRENCE. Where is the water that you divert from the Niagara River returned to the river?

Mr. CRAVATH. It is returned into Lake Ontario about 20 miles below the mouth of Niagara River.

The CHAIRMAN. If the right of the legislative branch to pass laws was denied simply because one diversion or three diversions do not affect the level, where are you going to stop; must the Congress wait until there have been ten or twenty or fifty diversions of water before it can act?

Mr. CRAVATH. I should say, Mr. Chairman, that I am simply thinking aloud, because I have not studied this subject nearly as much as you have—

The CHAIRMAN. Certainly, I understand.

Mr. CRAVATH. I should say that Congress would have the power to prescribe a limit beyond which water would not be diverted from Niagara River, provided such a provision were necessary to protect navigation in the Niagara River or in adjacent waters; but our proposition is that the combined withdrawal of water by all of these companies will not affect navigation in any of those waters.

The CHAIRMAN. Yes; but here is the question, Mr. Cravath: How are we to tell from our standpoint how many diversions there may be? Suppose there were three companies incorporated by the State of New York authorized to divert water from that river, and during the summer vacation, or the vacation between this and the next session

of Congress, a score should obtain that privilege. While that is a rather violent supposition, that is a possibility. Could not Congress act in limiting the amount of water to be taken, concluding that the time had arrived when there should be some action to meet not only present conditions but future conditions in the river?

MR. CRAVATH. I should say that Congress might have power before any withdrawal of water had been made to prescribe a reasonable limit.

The CHAIRMAN. Your idea would be a limit might be fixed?

MR. CRAVATH. Beyond which water might not be drawn. I assume you have the power to make such a regulation if the interests of navigation required it, and that you are not concerned with any disputes that might arise between any claimants to use the water within the limits imposed.

MR. SPARKMAN. You think Congress would be the sole judge of the limit to which it could go?

MR. CRAVATH. That is a very hard question. It is hard to define the line when discretion begins and ends.

MR. BURGESS. You think that would be a question finally before the courts?

MR. CRAVATH. I should think it would; yes. I should say that if it were a conceded fact that the amount of water now withdrawn from the river did not injure navigation, an attempt on the part of Congress to forbid that withdrawal would be beyond its jurisdiction, and the court would so hold.

The CHAIRMAN. Suppose it should be established, Mr. Cravath, that the level varies from year to year and information should be presented to the Congress to the effect that there was a probability that in succeeding years the level would be materially lower, could not Congress under those circumstances enact legislation looking to the preservation of the water as nearly as may be in its present condition?

MR. CRAVATH. I should suppose, Mr. Chairman, that a probable recurrent reduction in volume would be an element you would be entitled to consider in devising reasonable regulation.

The CHAIRMAN. The question is, What is the jurisdiction of Congress? Is it not absolute?

MR. CRAVATH. My feeling is that it is not; my feeling is stated by the Supreme Court, or rather I have adopted as an expression of my views the language of the Supreme Court in the Escanaba case, 107 United States.

The CHAIRMAN. That was a case in regard to the swinging of bridges in the city of Chicago?

MR. CRAVATH. Yes; but very apt as applied to the present situation:

That Congress has control over the waters of the United States which are navigable in fact in so far as may be necessary to insure their free navigation.

Of course they were there dealing with obstructions. It seems to me that the statement equally applies to our situation.

The CHAIRMAN. In that case the city of Chicago passed an ordinance that bridges across the river should be closed at certain times in the morning and evening. That is the case, is it not?

MR. CRAVATH. I believe so.

The CHAIRMAN. Congress had never acted upon that, had it, and it was an ordinance of the city of Chicago?

Mr. CRAVATH. Yes.

The CHAIRMAN. Suppose Congress had taken up that subject and said, "We haven't yet considered the question of the desirability of allowing those bridges to be closed morning and evening, but on full consideration we think public interests will be subserved by keeping navigation open at all times. There is an ordinance of the city of Chicago providing that bridges may be closed certain hours, but we now pass a law to the effect that they shall be open at all times." Would it not be within the power of Congress to do it? Is not that decision based upon a situation in which Congress had not at all exercised its power?

Mr. CRAVATH. I should suppose so, because there you are dealing with a physical obstruction to navigation, and Congress has the right to make regulations within an infinite limit. It might go to the extent of entire prohibition; but our proposition with regard to Niagara River is that in all human probability the aggregate diversion proposed by all of the existing authorized enterprises would not appreciably affect the navigability of the Niagara River or the adjacent waters. I shall not attempt to prove that proposition, because it is an engineering question, but we are so advised.

Mr. JONES. Suppose that Congress should declare that in the interest of navigation a limit should be fixed for the diversion of the water. Do you think the courts would review that declaration?

Mr. CRAVATH. I should suppose the Supreme Court of the United States would have jurisdiction to determine whether you had gotten into a realm where you could exercise judgment and discretion. Suppose, for instance, you prohibited the tearing down of the Palisades, as an aid to navigation; I should say that the Supreme Court would say that that was so plain a case where navigation could not be affected that you would not have jurisdiction.

The CHAIRMAN. Is it not in the power of Congress to declare when navigation is affected, and when we make that declaration would the courts review it?

Mr. CRAVATH. Within reasonable limits; but it is very hard to point out the line where your action becomes arbitrary and beyond a reasonable governmental discretion.

Mr. DAVIDSON. What would you say to the proposition that in view of the possibility of the construction by the Government of a water-way on the American side around the Falls and the necessity of supplying it with water that Congress in advance of that construction and in view of its possible construction could regulate the amount that might be diverted?

Mr. CRAVATH. I would be disposed to say, thinking aloud again, that that was an element you had a right to consider.

Mr. BEDE. I understand you believe that we can do almost everything for purposes of navigation?

Mr. CRAVATH. Yes—

Mr. BEDE. But it is not up to us to regulate the beauty of Niagara. Is that a fair statement of your position?

Mr. CRAVATH. Yes; that is a fair statement; and manifestly this legislation is for the beauty of Niagara Falls; that is its object.

The CHAIRMAN. Suppose, however, the regulation and control of

the level is something of which Congress has jurisdiction by reason of the fact that it does affect navigation; whatever the result, would it be an objection to this bill that as an incident to that control for the purposes of navigation the beauty of Niagara Falls was preserved? Suppose the jurisdiction attaches in the control of navigable waters; does not that jurisdiction remain—

Mr. CRAVATH. It would seem to me, Mr. Chairman, that the fact that you have jurisdiction to control navigable waters in so far as is necessary to insure their free navigation does not give you jurisdiction to do anything you choose to do regardless of the necessities of protecting waters for free navigation. For illustration, take the case we think exists: If we are right in thinking that the diversion of the water by the Canadian power company can in no event affect the navigability of those waters for reasonable purposes of navigation, it seems to me that a regulation, the effect of which would be to prohibit the use of our plant, would be beyond your power; in other words, your regulation must have the effect, it seems to me, and the tendency to accomplish the purpose for which you have been given jurisdiction over navigable streams.

Mr. BURGESS. Then, if I understand you, your view of it is that the power of Congress is dependent upon a fact, which fact is reviewable by the courts; is that your view of it?

Mr. CRAVATH. Yes; I should say that within certain limits the courts would have a right to determine whether the intervention of Congress was necessary or reasonable for the accomplishment of its purpose in protecting navigation.

The CHAIRMAN. This question arises: Suppose Congress did have jurisdiction and it appeared by extrinsic evidence that one object of the exercise of jurisdiction, possibly the main object, some might say the sole object, was the preservation of Niagara Falls; could the courts inquire into that fact?

Mr. CRAVATH. It seems to me they could, Mr. Chairman.

The CHAIRMAN. Suppose you concede that the jurisdiction exists because it is a navigable stream?

Mr. CRAVATH. Let me take another illustration: Assume that you determine that some power company is going to remove Goat Island for the purpose of increasing the supply of water for its canal, and you, then, professing to exercise your power to protect navigation, enact a law prohibiting the removal of Goat Island, and it were admitted that the existence or removal of Goat Island could not affect navigation, I should say the courts would hold that you acted without jurisdiction. It seems to me you would be attempting to exercise a power which was properly vested in the State. So, if we are right in our assumption that all we are doing or threatening to do can not affect navigation, Congress has not jurisdiction to interfere with us.

Mr. DAVIDSON. Then that proposition if carried out to its logical conclusion would result in taking into the courts every proposition in the United States where a riparian owner undertakes to divert water for his own purposes, and leave the question of facts to be determined by a local jury as to whether it does or does not interfere with navigation.

Mr. CRAVATH. No; not necessarily; because I say there is a line where you get beyond the realm of the exercise of arbitrary power

into the exercise of discretion. It is sometimes hard to tell where you cross that line.

The CHAIRMAN. Is not that peculiarly an exercise of judicial or legislative power to determine where that line is?

Mr. CRAVATH. Within certain limits; yes.

The CHAIRMAN. Is there any limit except bad faith or gross abuse of power with a view to improper objects?

Mr. CRAVATH. I should say there was, Mr. Chairman. It seems to me that when Congress enacts legislation of this kind, apparently for the sole purpose of protecting the beauty of Niagara Falls, without any demand from the navigation interests, we have such a case where the purpose of your legislation is entirely different from that contemplated by the Constitution.

The CHAIRMAN. It would not be exclusively for that purpose. There is a considerable amount of navigation on that river. There are great possibilities, as Mr. Davidson has suggested. There is a hope that at some time a canal may be constructed around the falls and rapids of Niagara River. A very elaborate survey has been made with that in view. Suppose Congress wanted to preserve the navigable quality of the river down to the very last point. Is not that a proper subject for consideration and action by Congress?

Mr. CRAVATH. I should be disposed to think so; yes, sir. I should think, no doubt, that the probable or even possible future requirements of navigation on those waters were entitled to consideration in determining the reasonableness of legislation.

Mr. SPARKMAN. That would bring it back as to whether this legislation was advisable or not from the standpoint of policy.

Mr. CRAVATH. If my advice is correct as to the practical situation, my feeling is that it is not a debatable question. I may be wrong, I may have heard but one side, but if my advice is sound there is nothing in the situation in the Niagara River which points to the necessity of legislation to protect navigation.

Mr. SPARKMAN. I say that would be the question——

Mr. DAVIDSON. Your argument ten years hence, after you have developed your power at Lockport, constructed your works, your canal and your tailrace to Eighteen-Mile Creek, would be much more strenuous against legislation that would take your water away for the purpose of supplying it to a canal than it is to-day?

Mr. CRAVATH. Undoubtedly.

Mr. DAVIDSON. Would it not be the better policy of Congress, then, to legislate early for the preservation of water looking to its use for the purposes of navigation to a larger degree in the future than at the present?

Mr. CRAVATH. I entirely agree, sir, that the situation demands some effective restriction on the amount of water that can be diverted from Niagara Falls, whether it be for the purpose of navigation or beauty of the Falls. It seems to me the only object in view is the protection of the Falls, but I think we must all agree that some limit should be placed on the amount of water that shall be diverted from the Falls.

Mr. BISHOP. Where would you place that restriction?

Mr. CRAVATH. That is an engineering question, but I will say a word about that. My information is that approximately—in fact, it is the report of your commission—approximately 60,000 cubic feet

per second would be required for those having existing rights to fairly exercise their rights.

The CHAIRMAN. But, Mr. Cravath, the 9,000 cubic feet for your Lockport Power Company is not taken into account in that computation.

Mr. CRAVATH. No.

The CHAIRMAN. And also 17,900 cubic feet which the General Electric Company asks for, both of which are outside of those estimates.

Mr. CRAVATH. I was about to say that my information is that even more than 60,000 cubic feet could be taken without affecting the beauty of the falls or affecting navigation. Assuming that somewhere about 80,000 cubic feet is the limit, and that limit is imposed, it seems to me that Congress should leave the interested parties free to determine among themselves, with the aid of the New York courts if need be, their relative rights for the division of that water. But it is distinctly unfair to vested interests for Congress to attempt to place a limit to the extent of saying that none of the water shall be taken, the limit not having been reached by corporations which have plants or which have partially constructed plants or which have begun the exercise of their rights. Take, for instance, the companies in which I am interested. You would ruin one company, you would prevent Colonel Greene's company from utilizing more than a small proportion of its plant, and it seems to me that the rights of these companies which have not yet begun to actually utilize their power, but have expended money with that end in view, are just as sacred as the rights of the companies that have actually begun the delivery of power, and I am sure that whatever your conclusion be as to your powers, assuming that you have the power to, as I would say, arbitrarily limit the amount of water taken from that river, you will have due regard to the vested rights of these corporations which have made the large investments and have developed power or have partially constructed their enterprises.

Mr. LAWRENCE. I understand, then, your idea to be that if we act along the lines of this bill it would be better for us to specify the amount of water that can be diverted, but not go further and specify the corporations and the amount that each corporation can use?

Mr. CRAVATH. I am speaking for no one except myself, but my view would be the fairer legislation would be to place the limit and then let the interested persons determine among themselves, with the aid of the courts of New York, if necessary, what division should be made of the water up to the limit allowed.

The CHAIRMAN. Do you think that would be possible, Mr. Cravath?

Mr. DOVENER. How would you do that?

Mr. CRAVATH. That is hard to answer, but so far as you have power to pass a regulation your duty would be ended, if you enforced that regulation.

The CHAIRMAN. To return to that proposed ship canal around Niagara, suppose Congress should contemplate such a canal at some time. A power canal, such as is contemplated, would go over the same route and might be so located that probably the ship canal would have to cross it at great difficulty and, perhaps, at great expense.

Would that give any jurisdiction of Congress, could Congress take into account the fact that the proposed canal for the diversion of water to create power is liable to be a serious, possibly an insuperable barrier, on the line of the most feasible route for a ship canal?

Mr. CRAVATH. You are compelling me to think out loud, Mr. Chairman. There are a great many subjects I am not familiar with. I think I had better not think out loud on that subject.

Mr. BEDE. If you know, or if there is some civil engineer present that does know, in case this ship canal is built how much would it require—would it require much water?

The CHAIRMAN. I doubt whether that has been computed. There would have to be a hydraulic lock at the lower end. The use for lockage would be one of the principal demands.

Mr. GREENE. Will you now hear from Mr. George W. Wickersham, representing the purchasers of power in New York, a class of people that have not been heard at all so far?

STATEMENT OF GEORGE W. WICKERSHAM, ESQ., COUNSEL, LACKAWANNA STEEL COMPANY.

Mr. Chairman and gentlemen, without entering into this most interesting and somewhat metaphysical discussion as to the limit of the powers of Congress, I want to call to the attention of the committee the position of my particular client, which is the Lackawanna Steel Company. Some five years ago the Lackawanna Iron and Steel Company, then established at Scranton, Pa., looked about for a suitable site for the development of its industry. It selected a tract of land some 10 miles outside of the center of the city of Buffalo, on the shores of Lake Erie, having in mind particularly the development of the power possibilities of Niagara River, and established there, incorporating for the purpose a company under the laws of the State of New York, a very large modern steel producing plant. Up to the present time that corporation represents an actual investment in money upwards of \$60,000,000, represented by stocks and bonds in the hands of the public, and of that I think it is safe to say—although I have not the exact figures—about \$40,000,000 has been invested right there near Buffalo. They have created a traffic on the Great Lakes that I suppose is certainly equal to that of any one agency of traffic there.

The raw material, the raw products that come to them over the Lakes, amount to about 2,000,000 tons annually, and they ship out about 175,000 tons of finished products by the Lakes. Their present output of finished product is about a million tons per annum, representing approximately \$30,000,000 value per annum. At present they are utilizing about 6,000 horsepower, generated up to the present time by their own power plant. After a prolonged negotiation a few months ago they closed a contract with Mr. Cravath's client, the Lockport company, for the delivery to them on the 1st of July next of 5,000 horsepower additional—electric power—with the right to call upon that company for additional power up to 10,000 horsepower. And I may say that their needs are such that they can not get that power one day too soon, and that every day after the 1st day of July that they are prevented from getting that power will represent an actual pecuniary loss to that company.

Now, out of the void comes this proposed legislation.

Mr. LESTER. Whom did you say that contract was made with?

Mr. WICKERSHAM. That contract was made between the Lackawanna Steel Company and Mr. Cravath's company, which derives its power from the company which Mr. Locke represents here.

Mr. DOVENER. I understood him to say that contract was for 2,000 horsepower.

Mr. WICKERSHAM. No; you are mistaken, sir. If we can not get that horsepower, we can not get that energy. We have to use our own power plant, and we can not do it in less than a year under most favorable circumstances before the first unit can be put in, probably. A delay of a year means a pecuniary loss that I have no means of calculating, but it means more than that, because if we can not get that power, that additional power there, it means that the future development of that plant at that point is going to be checked, and that we have got to look around and find some other and better site where we can get power, and it means just that much commerce diverted from that point, and these are things you have to bear in mind when you come to consider and balance the ethics of this aspect of the question against the trade and commerce of western New York.

Mr. DAVIDSON. Did you not consider all that before you located?

Mr. WICKERSHAM. We did not; we did not have the slightest idea of such a thing as this, and I do not think any human being thought there was any possibility of Congress endeavoring to exercise any authority over the Niagara River in this respect.

Mr. DAVIDSON. You did not, when you located the plant, expect to get power?

Mr. WICKERSHAM. Yes; and that is one of the reasons we located there, because we foresaw the development of electric power.

Mr. DAVIDSON. You constructed your own power plant?

Mr. WICKERSHAM. Yes; and we have always to maintain a certain power plant of our own. As I have said, that is just one-half of the minimum requirement at the present time and one-third of our ultimate requirements.

Mr. DAVIDSON. I would like to ask a personal question which you need not answer if you do not care to. I would like to know the difference in cost to your plant between having that power and not having it?

Mr. WICKERSHAM. The cost of establishing the new power plant is estimated to be about \$100 for a single horsepower—that is, for a 5,000 electric horsepower plant about \$500,000, and the time of construction would be about one year. The estimated amount of coal required to operate the steel plant on the basis of generating our own power is about 27,000 tons of steam coal per month and 33,000 tons of gas coal per month, making a total of 60,000 tons per month, or 720,000 tons per annum; and the average cost of transporting that coal from the coal fields from which it is drawn to West Seneca is about \$1.25 a ton. The estimated minimum saving by using the electric power drawn from the sources contemplated under this contract is from 20 to 25 per cent on the amount of power. Therefore you can see that that is a very material factor.

As I said before, it is not my purpose to enter into a discussion of these interesting legal questions involved as to the precise limits of

the power of Congress, but it is pertinent to draw your attention to these facts and to the position of this company and to the effect upon it, and upon the commerce of western New York and of the Great Lakes of this contemplated legislation which proposes to impose an embargo upon the transmission of power which makes it impossible to carry out these contracts.

Mr. HUMPHREYS. Is the reduced price of power you use there reflected in the selling price of your finished product?

Mr. WICKERSHAM. I am not connected with the sales department and I can not tell you.

The CHAIRMAN. Mr. Wickersham, of course we would all like to have you enjoy the use of this power, but have you made any calculation of the result in case all companies within the radius in which that power can be utilized obtain their power from Niagara River?

Mr. WICKERSHAM. I do not quite understand what result you mean.

The CHAIRMAN. The amount of water which would be used, provided all the companies within the radius of 200 miles from Niagara River used power derived from it.

Mr. WICKERSHAM. I say frankly my only knowledge on the subject has been acquired within the last twenty-four hours by a perusal of the printed documents before this committee. The whole subject came to me out of a clear sky about forty-eight hours ago, and since that time, while I have been diligent in the perusal of information upon the subject, my time has not allowed me to very fully inform myself or to go outside the records that have been before this committee.

The CHAIRMAN. Suppose the water taken would not only seriously impair but threaten to destroy the scenic grandeur of Niagara Falls, in weighing the advantages of the two, the industrial value and the value of the falls as a great spectacle, to which side do you say this committee ought to lean?

Mr. WICKERSHAM. With my imperfect knowledge of constitutional law, I am under the impression that Congress is not charged with either the duty or power to legislate for the scenic beauty.

The CHAIRMAN. We spent a good deal of money for Yellowstone Park.

Mr. WICKERSHAM. No; I beg your pardon. The Government of the United States reserved to itself out of its territory a large tract of land as a national park, and, of course, originally being territory of the United States and being reserved to itself as a park, it possesses all power over it; it is the owner of the fee and it is the sovereign of the soil.

Mr. BEDE. If we owned, as a nation, riparian rights on the Niagara River—

Mr. WICKERSHAM. But you do not own it.

Mr. BEDE. No.

The CHAIRMAN. You say that Congress should let this problem alone?

Mr. WICKERSHAM. I do not say that, Mr. Chairman, but I do say that Congress has no power to legislate solely for the scenic preservation of Niagara Falls. If you asked me to go a step further and give my impression, which of course is very crude, because I have not had time to study the subject very much, as I have just told you, I would say that in reading over the opinions printed in the documents that

have appeared before the committee I am struck by the fact that every one of the great lawyers who have expressed an opinion comes to the conclusion that the firmest ground on which he can plant Federal consideration of this subject is the treaty-making power. Is not that so—that every one of those opinions comes down to that? And as a matter of fact, the consideration of this as a regulation of commerce is really a subterfuge. I speak legally; I do not mean in an invidious sense. It is really a subterfuge. Congress's attention is drawn to it exclusively on the ground of the preservation of the scenic beauty of the falls.

The CHAIRMAN. I am not quite so sure of that, Mr. Wickersham.

Mr. WICKERSHAM. That may not be so, but all I have seen in the way of printed documents has referred to that phase.

The CHAIRMAN. I think serious considerations pertaining to navigation are involved.

Mr. WICKERSHAM. They do not appear in any of the printed documents which seem to have set this matter in motion. They may have been brought in afterwards for the purpose of buttressing up the proposition of Federal interference, but they were not thought of at first.

Mr. ELLIS. From what community of New York do you come?

Mr. WICKERSHAM. Individually?

Mr. ELLIS. Yes.

Mr. WICKERSHAM. I live in the city of New York.

Mr. ELLIS. Do you reflect the views, do you think, of the people of New York?

Mr. WICKERSHAM. I would not undertake to say that. I am expressing the industrial views of the Lackawanna Steel Company.

Mr. ELLIS. Well, that is frank.

STATEMENT OF MR. FRANCIS V. GREENE, REPRESENTING THE NIAGARA, LOCKPORT AND ONTARIO POWER COMPANY.

Mr. GREENE. Mr. Chairman, through the courtesy of your committee I have listened to every one of the hearings during the present week, and at every hearing it has appeared to me that members of the committee asked pertinent, direct questions on two lines: First, as to the right of Congress to deal with this matter in the method proposed by this bill, and second, as to the effect of diverting a certain amount of water—what effect that will have upon the appearance of the falls. It is on the second branch of your inquiry that I have to speak.

On Monday Mr. Cooper, a very distinguished engineer of New York, made the statement to you that 40 per cent of the volume of Niagara above the falls could be diverted without changing the appearance of the falls to the eye of the ordinary observer. He said from 40 to 50 per cent. As I recollect it, you said that you would like very much to be enlightened on that—like to have some data proving that or tending to sustain that contention.

The CHAIRMAN. Yes.

Mr. GREENE. On leaving here after that hearing I telegraphed to the chief engineer of our plant, who designed and constructed our works, fully described in this volume, which I have sent to every

member of the committee. He happens at the moment to be in Utah, and I asked him to take a train, and if possible be here at this meeting. The telegram did not reach him in time to come in person, and anticipating that that might happen, I asked him several direct questions on the line, as I understood them, of the questions you had asked, and this morning I have his replies, which I will read to you. These are from L. L. Nunn, the engineer who designed our works, a gentleman known to all the engineering profession as standing at the very head of it. [Reading:]

PROVO, UTAH, 19th—

Addressed to me in Washington—

Yours of the 17th received. I answer that I am unavoidably detained, and regret that it is impossible for me to appear personally on Friday.

The diversion of 60,000 cubic feet per second from Niagara Falls would not change appearances. The diverting 40 per cent of the flow would not materially change appearances, except 100 feet on Canadian side, where water is very shallow.

That colored drawing shows where he refers to. It is the shallow portion of the fall next to Goat Island, and it also appears in the frontispiece of these books.

Mr. DAVIDSON. You say the Canadian fall, 100 feet?

Mr. GREENE. Yes; except 100 feet on the Canadian side, where water is very shallow.

The annual variation is greater than this, and it has no appreciable effect on appearances. The greatest rapid variation is more than 40 per cent and is caused by change of the wind blowing the waters of Lake Erie east or west, and such change is hardly noticeable.

I might interject to say that Mr. Nunn practically lived at Niagara Falls, and his office faced the falls, and he saw it every day during the construction of these works. I asked certain further questions, to which he gives this answer:

The diversion of 12,000 cubic feet per second by the Ontario Power Company would not lower the falls more than 3 inches on the Canadian side, which could not be detected by the eye, and would have no effect on the American falls. The effect of diverting 15,000 cubic feet at Gatricks—

That is where the Lockport and Niagara Power Company has the right to divert the water—

Ten miles above the falls would be distributed over the entire river and not be perceptible. See also Proceedings American Institute, Electrical Engineers, volume 24, page 951.

I think that the diagram on page 12 of his description of the works showing the highest monthly mean in ten years is about half a foot above the mean level, and the lowest monthly mean in ten years is about 1 foot below the mean level.

The CHAIRMAN. Of course I must call your attention, Mr. Greene, to one manifest difficulty. Each one of the companies asking the right to divert water comes here and states that the amount which it desires would not injure the falls. But the trouble is we have a plurality of companies, and the real question is, How much depletion will be caused by the aggregate of all of them?

Mr. GREENE. That is precisely the question which I asked him. The total diversion by all the companies pending before you is less than 40 per cent.

The CHAIRMAN. This answer contemplates a diversion of 60,000 cubic feet, but the conclusion of his telegram was in regard to this diversion of 9,000 cubic feet for this Lockport, Niagara and Ontario Power Company. He says that would not appreciably lower the level of the river.

Mr. GREENE. He answers several questions. You have gone back to the first question now.

The CHAIRMAN. Sixty thousand, he says.

Mr. GREENE. First, that the diversion of 60,000 cubic feet would not change appearances. Second, that the diverting of 40 per cent, which is more than all the companies put together would take, would not materially change the appearance except for 100 feet on the Canadian side, where water is very shallow. That is the testimony not only of an engineer, but of a man whose office has faced these Falls for nearly three years.

Mr. DAVIDSON. Do you conclude from that, the difference in language used, that 60,000 cubic feet would not interfere with that 100 feet of the Canadian Falls?

Mr. GREENE. Yes, sir; I do.

Mr. DAVIDSON. But if you took 40 per cent it would?

Mr. GREENE. The flow taken, in Colonel Ernst's report, which is the highest authority, the average flow is 222,400 cubic feet per second, with a minimum flow on a monthly mean of 188,000 cubic feet and a maximum flow of 265,000 cubic feet. The difference between the maximum and the minimum, which is caused by the wind, is upward of 80,000 cubic feet, which is about 40 per cent of the flow, and the testimony is that that change which takes place constantly between the maximum and the minimum is not appreciable to the eye, and that difference is 40 per cent.

The CHAIRMAN. Do I understand you, then, to say that there is no appreciable difference between the highest and the lowest water under present conditions?

Mr. GREENE. I do, sir. I say that absolutely, based upon this knowledge, to the casual ordinary observer. I first saw the Falls thirty-eight years ago. I am prepared to say that there is no change in their appearance between that date and this. I went to Buffalo in January, 1904, and during the last twenty-seven months I have been at the Falls somewhere between a hundred and a hundred and fifty times. To my eye, in those one hundred and fifty visits I have not been able to distinguish any difference in the Falls, although during that time the high-water flow and the low-water flow has constantly occurred, due to the wind. The only change I have ever seen was once during the winter, when the thermometer was 30 degrees below zero—there was an ice jam which blocked the water very much on the American side, but of course that has no bearing on this question.

Mr. LAWRENCE. I understand you to say that if all the companies diverted all the water they claim the right to divert it would not amount to 40 per cent of the flow. Have you calculated just what the percentage of the flow of the stream would be if all the companies diverted all the water they have the right to divert or claim the right to divert?

Mr. GREENE. In Colonel Ernst's report, on page 9, are given the corrected figures for what I might call the companies actively under

construction, including the second tunnel of the Niagara Falls Power Company, concerning which Mr. Whitridge made such an appeal to you yesterday. That is given as 60,900 cubic feet. In addition to that, what is given in that list, there is on the American side the general electric proposition, the old Love scheme, which asked for 17,900 cubic feet, and the Lockport company, which asked for, say, 9,500 cubic feet.

The CHAIRMAN. That would be somewhat in excess of 80,000 cubic feet altogether?

Mr. DOVENER. Eighty-seven thousand three hundred cubic feet.

Mr. LAWRENCE. Nearly 90,000 cubic feet.

Mr. GREENE. I think not. On the Canadian side the only one which is not given in here which has a right to take water out is the Chippewa River, which I consider is absolutely impracticable for physical and financial reasons. It comes to about 80,000 cubic feet, or substantially 40 per cent of the mean flow.

The CHAIRMAN. Do you say 9,000 or 9,500 for the Lockport company—

Mr. GREENE (continuing). Well, say 42 or 43 per cent.

The CHAIRMAN. Bear in mind that there is a diversion for the drainage canal at Chicago. They have been before us and they want 14,000 cubic feet. The effect of that may not be to divert quite the amount taken away at Chicago from water flowing over the falls, but it approaches the full, does it not?

Mr. GREENE. Some hydraulic engineers claim that the effect of the diversion at Chicago is so slight as to be negligible so far as Niagara Falls is concerned.

The CHAIRMAN. If anyone maintains that position we will be glad to hear from him.

Mr. GREENE. I think on account of the precipitation and the evaporation—I do not say that it will not be something, but that it will not be any considerable factor.

The CHAIRMAN. Then you would assert that only a very small share of that water is diverted from going through the Niagara River and over the falls.

Mr. GREENE. That is my belief, a small share of it.

Mr. LAWRENCE. Then, getting back to the question I asked you, adding the amount claimed by the General Electric Company and the Lockport to the list on page 9 of the report, it would call for a diversion of between 42 and 43 per cent of the flow of water.

Mr. GREENE. About 42 to 43 per cent; yes, sir.

Mr. JONES. What effect would that have upon the present low-water flow?

Mr. GREENE. The low-water flow is a matter of an hour or two. I have never known whether the water was high or low. You have to have a sharp eye and knowledge of the wind in order to detect it at all, and to the eye of the ordinary spectator I maintain that the diversion of that amount of water will not seriously change the appearance of the falls. An ordinary observer would not know it.

The CHAIRMAN. Referring to the Chippewa Company, in Canada, how much have they a right to divert? You said that was an impracticable project.

Mr. GREENE. It is not specified; but the Chippewa River itself, which is a narrow stream, would limit that. I should say it was a

small amount, comparatively, that could be taken backward through the Chippewa River; but they have got a canal to dig there so long from where they take the water in the Chippewa River to where they get it into Lake Ontario that I do not think the scheme is financially feasible.

The CHAIRMAN. What do you say in regard to this: Are all the franchises granted on the Canadian side which will be granted? Has any limit been placed, by legislation or otherwise, to the number of privileges to be given over there?

Mr. GREENE. Of course I am not able to speak for the Canadian government, sir. I can tell you this, as bearing on it, as essentially the attitude of men in Canada at the present moment, and I think this may interest the members of the committee. During the last two years, particularly during the last six months, the people of Ontario, under the authority of the legislature of Ontario, have had two commissions investigating this power question—one known as the “municipal commission,” consisting of delegates from every city and town within electric radius of Niagara, looking to the possibility of these cities and towns combining and building a generating plant and building transmission lines so as to get the power distributed at cost; the second commission, known as the “hydro-electric commission,” appointed by the government of Ontario itself, for practically the same purpose, to determine whether the government—not the municipalities, but the government of the province—should go into the power business on its own account in order to furnish power at cost. The municipal commission has applied to the commissioners at Queen Victoria and Niagara Falls Park, shown on this map, and has the ground just above the falls from which the water would have to be taken, to know whether they would be granted a franchise to take water, and the answer was, emphatically, “No; we will not grant any more franchises to take water.” I am not, as I say, authorized or qualified in any way to speak for the Canadian government, but that is a fact which I know has happened in the last thirty days.

The CHAIRMAN. Here is a point: Has it not been the insistence of the Canadian authorities that they should be allowed to withdraw a quantity of water greater than that withdrawn on the American side for the reason that the fall is heavier on their side of the river—have they not insisted upon that?

Mr. GREENE. I must refer you to Colonel Ernst; he has attended their meetings and I have not.

The CHAIRMAN. I would like some information on that.

(The chairman made an inquiry of Colonel Ernst, sitting at the chairman's side, which the stenographer could not hear.)

Colonel ERNST (replying to the chairman). Not in terms, that I know of; they have simply insisted that they had a perfect right to give such privileges as they pleased without regard to us.

The CHAIRMAN. Let me call your attention to one point. The aggregate amount diverted on the American side, if all these companies which you have enumerated are included, would be 54,100 cubic feet. If that were to be multiplied by 2 you would have 108,200 cubic feet.

Mr. GREENE. I do not undertake to say that there is not a limit at which these falls would be seriously injured by the diversion of water.

I am trying to give information which you are constantly asking for, to enable you to form a judgment where that limit is.

Mr. DAVIDSON. If you will, restate it please.

Mr. GREENE. At about 40 per cent the falls will not be seriously injured by the diversion; that is average flow.

Mr. DAVIDSON. Now, will you state the difference between the high and low water flow by reason of the wind?

Mr. GREENE. About 40 per cent.

Mr. DAVIDSON. That 40 per cent is not noticeable to the eye?

Mr. GREENE. No, sir.

Mr. DAVIDSON. If, however, 40 per cent were withdrawn for hydraulic purposes and 40 per cent had been withdrawn by the wind, it would make a difference of 80 per cent?

Mr. GREENE. No; the wind affects 40 per cent, or, say, would reduce it down to 188,000. Then—or say you take out 40 per cent, which is 80,000 cubic feet. Then you would have 140,000, and less than 40 per cent of that would be affected by the wind.

Mr. DAVIDSON. But it would be 40 per cent of what was left?

Mr. GREENE. Yes.

Mr. DAVIDSON. What do you say about that?

Mr. GREENE. I say those periods of east wind last for such a brief time that you will have difficulty in being there when that happens. I don't know the percentage; it may be 85 or 90 per cent of the days of the year those things do not happen; the normal flow is the flow during more than three-fourths of the time.

Mr. HUMPHREYS. I may happen to get there at that time.

Mr. GREENE. It will be a splendid spectacle then.

Mr. DAVIDSON. That tourist would go away feeling that he had a special favor shown him?

Mr. GREENE. Yes; it would be still the grandest spectacle he could see, and it is constantly varying.

Mr. HUMPHREYS. One gentleman here expressed it that all this trouble had been blown up by the winds; that people visiting the falls happened to get there when the wind was blowing in such a direction that the flow had been decreased, and those people thought the falls had been ruined by the power companies taking out the water. One gentleman, the president of the Board of Trade of Buffalo, said that he had seen it when he would have thought, if he did not know it was caused by the wind, that the power companies had ruined the falls.

Mr. GREENE. I did not so understand his testimony. He spoke about the time, fifty years ago, when somebody had gone across dry shod.

Mr. HUMPHREYS. One gentleman expressed it that the winds had blown up all this trouble here; that people visited the falls when the winds had blown up that 40 per cent. and they concluded that the falls had been ruined by the companies that had taken the water for power purposes.

Mr. GREENE. If anybody gave that testimony I should say it was hastily given, without due consideration.

Mr. HUMPHREYS. I didn't understand your answer to Mr. Davidson's question exactly. Do you say that when the wind blows in a certain direction that that takes 80,000 cubic feet away from the maximum flow?

Mr. GREENE. Between the maximum and the minimum I say there is a difference of 80,000 cubic feet per second.

Mr. HUMPHREYS. Well, if the wind blows back that much and the stream is then depleted by drawing out 90,000 cubic feet per second for these companies, what would you say would be the result then? I mean the result on the appearance?

Mr. GREENE. At the lowest water you would see a change, but I say you would still see the most sublime waterfall in the world.

Mr. HUMPHREYS. A change; and would not the beauty of the falls be seriously marred?

Mr. GREENE. No, sir; it would not. There would be a change—it would be a different sight from the maximum flow—but it would still be the most sublime waterfall in the world.

Mr. DAVIDSON. Is not the sublimity in the average mind made up largely of the stupendous flow and the volume of sound?

Mr. GREENE. Even under those conditions you could not hear yourself talk if you were near the falls. The volume would still be so enormous as to drown the voice.

Now, Mr. Herschel is a hydraulic engineer, and I am not. I have quoted the opinion of Mr. Nunn, and I have asked Mr. Herschel to be here, not to speak, but to answer questions, if you desire to ask them, in regard to these hydraulic matters. He has been associated at the falls for twenty years.

The CHAIRMAN. There are a few questions I would like to ask you. What is the prospective development, measured in horsepower, of your transmission company?

Mr. GREENE. Of the transmission company?

The CHAIRMAN. Yes.

Mr. GREENE. That is on this side of the river?

The CHAIRMAN. Yes.

Mr. GREENE. About 200,000 horsepower. The land is bought for that much.

The CHAIRMAN. As I understood from Mr. Locke, you already have contracts for 40,000 horsepower?

Mr. GREENE. Mr. Cravath stated to you that his client had sold power calling for a flat, firm purchase of 15,000 horsepower and an option upon the part of the purchaser, which would probably be exercised, of 40,000 horsepower. I understood your question to be entirely different.

The CHAIRMAN. That is, you contemplate a maximum of how much?

Mr. GREENE. Two hundred thousand horsepower.

The CHAIRMAN. And that you expect to derive from this Ontario Power Company?

Mr. GREENE. Partly.

The CHAIRMAN. And partly from the Lockport, Niagara and Ontario Power Company?

Mr. GREENE. Yes, sir.

The CHAIRMAN. For what amount have you construction already completed?

Mr. GREENE. We have construction completed for about 60,000 on land capable of carrying constructions for 200,000, the land already bought and paid for.

Mr. LOCKE. That is the transmission company?

Mr. GREENE. That is the transmission company.

The CHAIRMAN. I suppose you have nothing to add to the report of the Deep Waterways Commission in regard to the power companies on the Canadian side?

Mr. GREENE. No, sir; I think that gives a fair statement of them. There are a great many photographs here and descriptions that probably the members of the committee would like to look at.

The CHAIRMAN. Do you understand that the maximum the Canadian and Niagara Power Company may develop is the product of 9,500 cubic feet?

Mr. GREENE. Yes, sir.

The CHAIRMAN. And that the Ontario company has a maximum of 12,000, not including the Welland River development?

Mr. GREENE. Yes; not including the Welland River development.

The CHAIRMAN. The Electric Development Company's maximum is 11,200 cubic feet?

Mr. GREENE. That is my understanding.

The CHAIRMAN. And the Niagara Falls Park Railway Power Company 1,500 cubic feet?

Mr. GREENE. Yes, sir.

The CHAIRMAN. Are those all the companies on the Canadian side except this Chippewa River development you mentioned?

Mr. GREENE. Yes, sir.

The CHAIRMAN. Do you know of any other companies seeking franchises on the Canadian side?

Mr. GREENE. None, except this municipal commission, which has been refused.

The CHAIRMAN. Refused by what, or by whom?

Mr. GREENE. By the park commissioners who control the water front, as riparian owners, for many miles.

The CHAIRMAN. Refused permission by the park commissioners?

Mr. GREENE. Who, as riparian owners, control the water front; yes; for many miles.

The CHAIRMAN. Do they have the absolute right to refuse franchises to development companies?

Mr. GREENE. Yes; on the theory that they are the riparian owners.

The CHAIRMAN. I believe that is all.

Mr. GREENE. That park, if I may say so incidentally, is sustained by the contributions of the power companies, who, so far from desecrating the falls, are paying large sums of money to maintain that park, which is a great addition to the beauty of the falls.

The CHAIRMAN. How is this maximum fixed in the charters of these respective companies—was it a legislative act, or what was it?

Mr. GREENE. In two ways. The franchise of the electric development company reads, "enough water to create 125,000 horsepower," and the engineers figure that out 11,200 cubic feet.

The CHAIRMAN. That is for the development company?

Mr. GREENE. That is for the development company. The two other companies the amount of water is not specifically limited, but the plans are subject to the approval of the park commissioners, and the plans have been made based upon using the amount of water stated in this report. For instance, our head works are all complete

for 200,000 horsepower, and that can be created by 12,200 cubic feet per second.

The CHAIRMAN. This Ontario Power Company is an American corporation?

Mr. GREENE. It derives its charter from Canada, but its ownership is entirely American, except a few qualifying shares held in Canada.

The CHAIRMAN. Is there any other company over there owned by American capital?

Mr. GREENE. The Canadian and Niagara Falls Power Company; the Electric Development Company is owned entirely by Canadian capital.

The CHAIRMAN. As far as the room for diverting water and developing and creating power is concerned there is an almost unlimited opportunity on the Canadian side, is there not?

Mr. GREENE. By no means unlimited. Engineers have reported that there are four more sites available, which is far from being unlimited, and they have given, I think, a very liberal estimate. I do not think I would advise anybody to put any money into three of them, because they could not compete in price with those already existing, and the fourth one is also more or less open to question. The best sites have been taken.

The CHAIRMAN. This, further, is true, is it not? The capacity at these three sites could be materially increased, could it not?

Mr. GREENE. I answer your question no, sir; because the head works, the intake works, are finished or begun on plans which do not admit of any change. Our intake is finished, the Canadian and Niagara Company's intake is finished, and the Canadian Electric Development Company's intake is half finished, and they applied last winter for permission to double the amount of water and were positively refused.

The CHAIRMAN. They would, however, have the space to do that, would they not?

Mr. GREENE. No, sir; not without entirely new works on a different basis, which would cost more than they are worth.

The CHAIRMAN. If they obtain the privilege from this controlling park board could they not enlarge their works?

Mr. GREENE. Not to advantage from an engineering or financial standpoint; they are fixed by the plan now.

The CHAIRMAN. But could not other plans be adopted and other space utilized?

Mr. GREENE. It would amount to the creation of an entirely new plant.

The CHAIRMAN. And they would have to obtain that from this park commission?

Mr. GREENE. Yes.

The CHAIRMAN. They could, however, if they did obtain it from this park commission, develop much more water power, could they not?

Mr. GREENE. Not in connection with their present plans; it would have to be an entirely new plan.

The CHAIRMAN. Practically by the side of the present one?

Mr. GREENE. Yes, sir; but it would be an entirely new proposition, and I would like to remind you of the town cases in which the park

commissioners have refused applications for more water, both of which have occurred within a year. One was the Electric Development Company, which asked to do what you have suggested, to develop their intake, and it was refused; and the other was from the municipalities, who within thirty days asked for a site and were refused. I think that indicates as far as it can, as far as anything that has definitely happened, the attitude of the Canadian authorities.

The CHAIRMAN. Do you know of this movement for municipal development and electric light? We have heard of that more or less in the newspapers. Are you familiar with that movement?

Mr. GREENE. No, sir.

The CHAIRMAN. And what the probable result will be?

Mr. GREENE. You mean the cities buying over the gas and light companies?

The CHAIRMAN. Providing electric plants and obtaining the power for them from the falls.

Mr. GREENE. I don't know of any such movement on this side of the river.

The CHAIRMAN. On the Canadian side is what I refer to. You say that these park commissioners have refused permission for that?

Mr. GREENE. The park commissioners have refused permits, yes, to take water for that purpose.

If I do not tax your time too much, I would like to convey to the committee some idea of the magnitude of horsepower to be created by anything like 40 per cent of the waters of Niagara Falls. The minimum horsepower created by a cubic foot of water of any company is about 10. We are more favorably situated; we get about 16½ horsepower for every cubic foot of water.

The Lockport Company, if it should build its canal, would get something over 20 horsepower for every cubic foot, and the General Electric proposition, which you heard on Monday, would get about 24, I think. Of the companies which are building, the average is somewhere about 12½ to 13 horsepower per cubic foot per second of water. Eighty thousand cubic feet of water, or 40 per cent of the falls, would make nearly a million horsepower. It is going to be a long time before there will be a demand for a million horsepower, a long time. Here is the greatest individual steel plant in the world represented by Mr. Wickersham, absolutely the largest steel plant in the world. They only take 10,000 cubic feet. We have sold to the trolley company of Syracuse, and they only want 5,000 for all the trolleys in Syracuse. The trolley lines of Rochester do not need over about 3,000 cubic feet. The trolley lines in the vicinity of the falls at the present minute consume, I think, somewhere along about 10,000 or 11,000, including Buffalo. The whole Niagara frontier, 40 miles long and out to Lockwood, would have to be developed a great deal before you would get to 300,000 horsepower—that is, 300,000 horsepower would mean a great development there, and 200,000 or 300,000 horsepower means only 20,000 or 30,000 cubic feet of water.

The CHAIRMAN. If you could have figures prepared concerning prospective demands for power within a radius of 200 miles, say, of the falls, they would be of assistance to us. I think you may find some valuable material, perhaps, for getting up such data in some of the census reports.

Mr. GREENE. I can give you a few statements as to that immediately.

The CHAIRMAN. Perhaps it would be better to tabulate it.

Mr. GREENE. I was about to say that Buffalo requires about 35,000 horsepower, and Rochester 18,000 horsepower.

The CHAIRMAN. One other question I wanted to ask you. Does this Canadian Niagara Power Company contemplate transmission of power into the United States?

Mr. GREENE. They are transporting power into the United States at this minute. If you will refer to the map you will see their plant on the Canadian side. It is connected by cables running over the bridge with their plant on this side, and they can at this moment send about 40,000 to 50,000 horsepower over that bridge. They are also building actively a transmission line to Fort Erie, and they are crossing the Niagara River on towers 150 feet high and coming into Buffalo. So they have one line in use to bring power into the United States at this minute, and another one in contemplation.

The CHAIRMAN. Has the other company, the electric development company, which you say is supported by Canadian capital, any contracts for the transmission of power into the United States?

Mr. GREENE. Mr. Dudley spoke for them on Tuesday, and I understood he said they had.

The CHAIRMAN. That was the company he represented?

Mr. GREENE. Yes; I have no knowledge of their affairs except what he stated.

Mr. DAVIDSON. Is the ownership of the Niagara Falls Company and the Ontario Power Company practically the same?

Mr. GREENE. Not at all.

Mr. DAVIDSON. I thought you referred to them as being practically the same.

Mr. GREENE. I said the Niagara Falls Company in New York and the Canadian Niagara Power Company.

Mr. DAVIDSON. That is what I meant.

Mr. GREENE. You just asked me about the Ontario Power Company.

Mr. DAVIDSON. I mean to say are the Canadian and Niagara Power Company and the Niagara Falls Power Company practically the same?

Mr. GREENE. Yes.

Mr. DAVIDSON. I want to ask you about those Canadian park commissioners and that refusal of a request to give additional permission to divert water for power. Was that a matter of discretion with the commissioners?

Mr. GREENE. Yes.

Mr. DAVIDSON. And if they were changed at any time the other men occupying those positions could grant the privilege if they desired?

Mr. GREENE. I suppose they could change their will as frequently as Congress can, no more or no less.

Mr. DAVIDSON. And likely to do so if the pressure was equally as great?

Mr. GREENE. I think hardly as likely, if I may say so without offense.

Mr. DAVIDSON. Would they reflect public policy or public opinion as clearly as Congress would?

Mr. GREENE. Yes; they are the creatures of the Ontario government. Ontario is a province in the Dominion of Canada, and the park commissioners are appointed under an act of the legislature of Ontario and act under the direction of the so-called "lieutenant-governor in council," and what they do has to meet the approval of the lieutenant-governor in council before it is valid.

Mr. DAVIDSON. You mean that their action reflects the opinion of the controlling power—the administration?

Mr. GREENE. I think there is no more accurate reflection of public opinion in Canada than the acts of those park commissioners, because they are subject to removal by the lieutenant-governor, and they act under his direction, and the lieutenant-governor is elected by popular vote.

Mr. BURGESS. I would like to ask you how many miles above the crest of these falls is the intake of your works?

Mr. GREENE. The Canadian works, 6,100 feet. The water which goes into our works can by no possibility, if we do not take it, get into the American Falls. It is on the other side of the river and just at the beginning of the rapids.

Mr. BEDE. Does the Dominion government claim any authority there, or leave it entirely to the province?

Mr. GREENE. There is a dual authority. We derive our charter in Canada from the Dominion government, a special charter, which has distinctly given us the right to bring electricity to the international boundary for the purpose of transmitting it to the United States. That was the most attractive feature of the charter when the present owners took hold of it. The Ontario government—the Province of Ontario—exercised authority, I might say, analogous to that of a State. It is not absolutely supreme, but it regulates local matters, and it owns this power.

Mr. BEDE. I wanted to get at how a treaty between this Government and the Dominion government would reach this point.

Mr. GREENE. If I may make a suggestion on that without being indiscreet—of course your treaty must be made with Great Britain; but I think no treaty will ever go through that is not negotiated by Canadians.

The CHAIRMAN. We have been somewhat familiar with the delay that occurs in negotiations affecting Canada in the action upon the provision in the river and harbor act of 1902 appointing this international waterways commission. It was nearly three years after the act was passed before any action was taken upon it.

Mr. ALEXANDER. I think Colonel Ernst understands that much of that delay, or a good part of that delay, was due to overlooking the papers which were finally found in a pigeonhole, after referring the matter to Ambassador Choate for the third time. The Parliament of Canada found them in a pigeonhole.

The CHAIRMAN. They might find another pigeonhole.

One question about the right to transmit electric power in New York. Is that grant by special act of the legislature, or is there a possibility of incorporating for that purpose under general law?

Mr. GREENE. Both. The Niagara, Lockport and Ontario Company's charter distinctly provides for the transmission of electricity, but the peculiar feature of that charter is that it grants the right of eminent domain.

The CHAIRMAN. Which you would be compelled to have if you should go as far as Syracuse, for instance?

Mr. GREENE. Yes; practically. Mr. Dudley's company, on the contrary, is incorporated under the general corporation law, and I believe he expects to get his right of way by building a railroad as an incident and putting his powers on the railroad line.

The CHAIRMAN. So there may be a plurality of companies, companies which come under the general incorporation law as well as under special acts?

Mr. GREENE. Unless you kill them; yes.

STATEMENT OF MR. CLEMENS HERSCHEL, CONSULTING ENGINEER, NIAGARA FALLS HYDRAULIC POWER AND MANUFACTURING COMPANY.

The CHAIRMAN. You have been quoted, I believe, once or twice. If you desire to address the committee we shall be glad to hear you, or do you appear simply to answer inquiries?

Mr. HERSCHEL. Only to answer inquiries.

The CHAIRMAN. What do you say about the quantity that can be taken from the river without interfering with the scenic grandeur of the falls?

Mr. HERSCHEL. Well, grandeur is a term that is capable of a great many meanings. For myself, I do not know why a cataract of 111,000 cubic feet does not contribute as much scenic grandeur as one of 222,000 cubic feet. I should be satisfied with one of 111,000 cubic feet per second pouring over a fall of about 200 feet in height. I don't know any other that is more grand.

The CHAIRMAN. How do you determine what the result will be of the reduction of the flow? Do you know the contour of the crest on the two sides?

Mr. HERSCHEL. I have known Niagara Falls in a professional way for the last twenty-three years. I think I have done work up there for every company that is there, unless it be the last two on the Canadian side. I can not say how many times I have been there. I have made it a subject of study during all these years and have made a number of computations. I know, I presume, about as much about the shape of the crest of those two falls, the American and the Horseshoe, as anybody does.

The CHAIRMAN. Well, do you know what the contour is?

Mr. HERSCHEL. No; I do not. No man knows. No absolute survey as to depth of waters has ever been made. But if you take the American Falls and consider it a body of water uniformly 4 feet deep flowing over it, you will have made no violent assumption with respect to the truth; and if you consider Horseshoe Falls a body of water with a depth of 14 feet, you will have made a fair approximation in that case to the truth. I can tell you what the 14-foot measure is based on. There was a time once when as a spectacle a schooner was allowed to go over the falls. That was in the fifties, I think. That vessel drew 14 feet and slid over without touching. So it may be safely asserted that it is 14 feet in depth there.

The CHAIRMAN. Is the depth uniform from side to side? Is there not a greater depth in the center than at the two sides?

Mr. HERSCHEL. Most certainly; but 14 feet is a fair representation of that falls.

The CHAIRMAN. What do you mean, an average?

Mr. HERSCHEL. Yes; an average of the main body of water.

The CHAIRMAN. Is not the question of the preservation of the scenic beauty of the falls dependent very largely on that contour? It may be 20 or 25 feet deep in the center and then diminish gradually to a less depth on each side. If there is that variation in the depth, would it not greatly diminish the width of the fall and affect its appearance if any considerable percentage of the volume of water were diverted?

Mr. HERSCHEL. So far as the width goes, I do not think it would materially affect it. Where the terrapin tower used to stand there are small streams of water trickling over, and of course those would be affected; and it is the same way on the Canadian side. There are some shallow streams near the shore, but still the Horseshoe is fairly spoken of as being 14 feet deep.

The CHAIRMAN. Have you any means of knowing what the depth is, say 100 feet from the respective sides?

Mr. HERSCHEL. No; I have not, except judgment.

The CHAIRMAN. This is the question that does not seem clear to me. Can anyone who does not know the respective depths of water at different points from side to side, who can not tell whether it is 15 feet in the center or 25 or 30 feet, make any accurate forecast of what the result would be of withdrawing half the water?

Mr. HERSCHEL. He can make a reasonable forecast. We do not any of us know how much this earth weighs, and yet the weight of this earth is an important element in calculations, and is used daily, and millions of money are dependent upon the closeness of that estimate of the weight. In the same way we need not talk wildly about those falls, if we use a little reason. Engineers measure the cross sections of rivers, and although one river differs from another river, yet general laws affect them and general shapes are followed out, and the water flowing over there is not beyond reason or nature. The question that comes up in regard to it is this: If 5,000 cubic feet per second were taken out of that river, how would it affect those two falls?

I can not answer that question down to the thousandth of a foot of measure, which is as close as we measure any water flow, but I can answer it sufficiently accurately for the purposes of this or any other ordinary investigation.

The CHAIRMAN. If you do not know the depth in the center, and do not know the contour of the bottom there, how can you come within rods of it?

Mr. HERSCHEL. If you can not see after what I have just stated that I can give you a reasonable answer to that question I am afraid I can not prove it.

The CHAIRMAN. I am frank to say that if you do not know the contour of the bottom of the falls at all, whether the maximum depth of the fall is 20 or 30 or 40 feet, and you do not know whether it is nearly uniform across or not, possibly you can demonstrate the problem to your own satisfaction, but I really am lacking in that perception which enables me to see how you can demonstrate to anybody else what effect it will have to take out half the water.

Mr. HERSCHEL. I have been asked that question by people who do think I can answer, and it may require a little faith.

The CHAIRMAN. I think it is mostly faith.

Mr. LAWRENCE. I would suggest that you go on and answer it. Show us how you arrive at your conclusion.

Mr. HERSCHEL. It does not make much difference whether there is a peak in there in the crest which lets through an amount of water, which compared with the bulk of it is immaterial: it does not make any difference whether it is there or is not there; but, responding to the inquiry, I will tell you the result and how I have arrived at it. I will not undertake to judge of anybody else's results until I know how he has arrived at them, and so I will tell you how I have arrived at my own results, in order that you may judge about them.

Anybody that knows the American Falls knows that it is almost level across there. The bottom of the river is nothing but a rift of rock in horizontal layers, and you can see that that thing is practically horizontal across there. It doesn't make any difference whether there are little depressions there or not, that American Falls has a certain length and in ordinary stages of the river it is about 4 feet deep. Now, within as close as 10 per cent we certainly can say how much water is going over that falls. It would be classed, using engineering terms, as a weir whose downstream discharge is extended by a spout. In other words, instead of being a weir with a sharp edge like this [indicating with a piece of paper], it is a weir with a flat surface, like this [indicating]. I made that computation, and that American Fall discharges about 222,000 or 223,000 cubic feet per second. We know, from measurement of the Niagara River up at Black Rock, what the total discharge of the river is, and it thus turns out that the discharge of the fall is about one-eleventh, or one-twelfth, possibly, of the discharge of the whole river.

Now, assuming that the American Falls has that width—I don't remember what it is—and that the sheet of water on it is 4 feet thick, if you take 5,000 out of it, and you take one-eleventh or one-twelfth of it from the American Falls, it will affect that water fall five-eighths of an inch. If you take what is left of the 5,000 feet out of the Horseshoe Falls—and you must assume that to be 14 feet thick, an average of 14 feet thick—it will take out of that water fall $2\frac{1}{2}$ inches in depth. That would not quite hold true for the next 5,000 and the next 5,000, and so on; it will be a little greater; but after these computations are made, Mr. Chairman, we are no longer wild guessers; apart from the fact that we have a judgment on such matters, that judgment is backed by these computations, and you may accept those computations for present purposes; they are a great deal better than nothing at all, or than guesses. They are—I won't say precise, because in the nature things you can not make a precise computation of a thing like that, but you can make one near enough to judge by and to be safely guided by, and as such I present it.

The CHAIRMAN. What I don't quite understand is this: How a calculation which applies to a crest which is straight across could at all apply to another which is irregular and concerning which you say you do not know whether it is 25 or 30 feet in the center. It would seem to me that the most accurate computation would require radically different calculations in those two cases. Do I understand

you that to take away half the flow of the falls would not diminish the width on the Canadian side?

Mr. HERSHEY. I have not said so.

The CHAIRMAN. What do you say?

Mr. HERSHEY. I say the shoal water on each side would be affected, and as to the main body of the stream, the computation would not be any different whether that middle peak was 25 feet deep or whether it was uniformly 14 feet across, not enough difference so you would speak of it here.

The CHAIRMAN. What would be the amount by which the depth on the Canadian side would be lowered, suppose one-half the present water went over it?

Mr. HERSHEY. Oh, there would remain something like two-thirds of the depth.

The CHAIRMAN. You say the depth would then be two-thirds the present depth?

Mr. HERSHEY. No; I do not say two-thirds; I say about two-thirds—which in my mind is very different.

The CHAIRMAN. To what extent would the width be affected?

Mr. HERSHEY. I could not say.

Mr. BEDE. Does not the maximum and minimum flow help you to estimate what changes would be made in the width?

Mr. HERSHEY. The appearance, you mean?

Mr. BEDE. Yes; does that change it very much when you have a minimum flow?

Mr. HERSHEY. No; it does not. I am accustomed to look at that water fall with critical and observant eyes, and there are certain landmarks there which I cast my eyes over, and I say to myself the river is high or the river is low, but there is not one man in a hundred thousand or a million that has that same view; nobody except those whose business leads them to watch for such things ever sees them.

Mr. JONES. Could you detect the difference except by reference to those landmarks?

Mr. HERSHEY. I could not.

Mr. BURGESS. Assuming that the water is 4 feet deep on the crest on the American side and 14 feet deep on the Canadian Falls; assuming that you take out 40 per cent at those various plants; will the effect be to reduce the depth at the crest 40 per cent; and if not, how much?

Mr. HERSHEY. It will be somewhat less. I replied as to taking out one-half the water that it would take off about one-third the depth. I give you that as my judgment; that is by view, with no computation about it.

Mr. BURGESS. Have you any formula known to your profession by which you could calculate what proportion the reduction of the depth would be over those falls by this diversion of 40 per cent of the water?

Mr. HERSHEY. We have formulæ which will guide our judgment in this respect, which will keep us from going wild in either direction. It is not a matter that can be computed with precision, but it can be computed with sufficient accuracy, I think, for our purposes.

The CHAIRMAN. What formulæ do you use?

Mr. HERSHEY. I would not undertake to say which one I would use.

The CHAIRMAN. There are several?

Mr. HERSCHEL. I would want to compare several.

The CHAIRMAN. Which are some of them?

Mr. HERSCHEL. Well, experiments on the class of weirs such as I have mentioned here, the best ones are published in French by Lesbros. Those are the ones that more nearly meet this case, I think, than any others, as I now view it. Of course I would want to consult books, the same as our sixteen lawyer friends on the committee would want to consult books before answering a question in their line.

The CHAIRMAN. How are those formulæ made up?

Mr. HERSCHEL. They are based on experiment entirely.

Mr. LAWRENCE. Then we are to understand that the result of your study and observation is that 50 per cent of the quantity of the stream can be diverted without seriously marring the beauty of the fall?

Mr. HERSCHEL. Yes; I should say that.

Mr. ELLIS. What effect would that diversion and the reduction of the amount of water flowing over there have on the erosion of the falls?

Mr. HERSCHEL. It would diminish it very much.

Mr. ELLIS. The preservation of the falls?

Mr. HERSCHEL. It would diminish the erosion.

Mr. ELLIS. Is the amount of water going over there now materially affecting it?

Mr. HERSCHEL. Oh, yes; those falls travel upstream a great deal faster than is generally supposed. I haven't the figures in my mind, but it is not less than $2\frac{1}{2}$ feet, and I think it is 4 feet, per annum.

Mr. SPARKMAN. Do those plans altogether, as a whole, undertake to regulate the relative amount of water that is taken from each?

Mr. HERSCHEL. No, sir; they can not do that. That water will flow as led. You invite it to go anywhere and it goes; it depends on the intake works.

Mr. SPARKMAN. I suppose that that could be done, that it is within engineering skill to regulate the proportion of water taken from the American Falls and the proportion taken from the Horseshoe Falls?

Mr. HERSCHEL. Yes; you could build a wing dam.

Mr. SPARKMAN. My question was as to whether the plan taken altogether contemplated the proper division of the water?

Mr. HERSCHEL. I have never heard of any such plan. I would like to answer the question put by a member of the committee in reference to one canal crossing the other. There is no difficulty about that. A power canal can cross a navigation canal very easily. In fact, I built one myself; there is nothing to it; the power water goes right under the navigation water.

The CHAIRMAN. The pipe is underneath?

Mr. HERSCHEL. Yes; it goes under by a siphon.

Mr. DAVIDSON. Have you ever made any measurements of the depth of the Horseshoe Falls from the Goat Island side?

Mr. HERSCHEL. I have never made any measurements; I have seen the thing.

Mr. DAVIDSON. How deep is it?

Mr. HERSCHEL. It is shallow in the vicinity of terrapin tower. There are some little streams there that are very shallow, that do not amount to anything.

Mr. DAVIDSON. For the first hundred feet there the water is not more than a few feet deep?

Mr. HERSCHEL. No, sir.

Mr. DAVIDSON. And the second hundred feet; how deep would it be?

Mr. HERSCHEL. Oh, well, I haven't been there for a good many years, and I would not want to answer that now.

Mr. DAVIDSON. I wanted to have some idea as to how much narrower the flow of water would be with the diversion of water spoken of?

Mr. HERSCHEL. It would be immaterial, I think; not appreciable.

Mr. DAVIDSON. If you took off 50 per cent of the water, which you say would take off one-third of the depth, you would then take off 100 feet there and make that much dry, would you not?

Mr. HERSCHEL. I would not say. I would want to make a special study of it before I would give an opinion in feet and inches.

Mr. LAWRENCE. How much of the width could be cut off, in your judgment, without marring the scenic beauty of Horseshoe Falls?

Mr. HERSCHEL. Call it 150 feet on each side or 200 feet on each side.

The CHAIRMAN. Two hundred feet on each side?

Mr. HERSCHEL. Yes. That is a matter of opinion. My opinion about scenic beauty is no better than anybody else's.

Mr. LAWRENCE. But you said that a diversion of 50 per cent of the water would take off one-third of the depth. I wanted to know what your idea about what scenic beauty was. You think if the falls were narrowed up 200 feet on each side it would not interfere with the scenic beauty of the falls?

Mr. HERSCHEL. I don't think it would at all.

Mr. JONES. How wide is it there on each side?

Mr. HERSCHEL. I have always assumed the American Fall to be 900 feet and the Horseshoe 1,500 feet long.

Mr. JONES. That is, you mean across the river?

Mr. HERSCHEL. And I took that from the maps.

Mr. JONES. So you think to cut it down to 1,300 feet would not mar the beauty?

The CHAIRMAN. To cut it down to 1,100 feet, he said.

Mr. HERSCHEL. I must correct that. This estimate of 1,500 feet in width means 1,500 feet of solid water 14 feet thick. In saying 1,500 feet, I have thrown out, no doubt, as much as 200 feet.

Mr. JONES. So it is probably 2,000 feet wide from the edge of the water to the edge of the water?

Mr. HERSCHEL. Yes.

Mr. JONES. What is the effect of the erosion on the appearance of the falls?

Mr. HERSCHEL. What effect is it now having?

Mr. JONES. Yes.

Mr. HERSCHEL. To say anything about that it is necessary to think of the falls as they have looked for twenty-five years. The erosion, as I said a little while ago, I believe is either $2\frac{1}{2}$ feet or 4 feet per annum, something like that, and as you go up there from time to time it does not seem as though there were the slightest difference, but by exercise of the memory, I think I have from time to time seen where the peak of the Horseshoe Fall has gone farther upstream and

changed its shape. It was, according to tradition, at one time a perfect horseshoe, a perfectly smooth curve.

Mr. JONES. Is it affecting the perpendicularity any?

Mr. HERSCHEL. Not permanently; it may from time to time. The force of the water is such that if any point projects beyond the top crest it is soon cut down to the bottom, in fact the whole fall retrogrades up stream by undermining from underneath.

Mr. ALEXANDER. Do you remember the terrapin tower?

Mr. HERSCHEL. Yes.

Mr. ALEXANDER. Was the water in those days flowing over the first 100 feet or 150 feet projecting out from the tower—was it flowing over that 150 feet more in those days than it is now?

Mr. HERSCHEL. I haven't been over the site of the terrapin tower, I don't suppose, for four or five or six or seven years; but there was never much water around the terrapin tower.

Mr. ALEXANDER. That is not a part of the fall, is it?

Mr. HERSCHEL. At present?

Mr. ALEXANDER. It never was.

Mr. HERSCHEL. Barely so. There were little streams sometimes between the terrapin tower and Goat Island, and sometimes a short distance beyond. They were not a part of the main fall at all.

Mr. ALEXANDER. Is there not less water running over there now than thirty-five years ago, when you first knew it?

Mr. HERSCHEL. Apparently not. I am not able to discover any such thing.

Mr. ELLIS. During the time that these works have been constructed—these hydraulic works there, power works—has this question been agitated among the engineers? Have they considered the ultimate effect upon the falls of the diversion of water?

Mr. HERSCHEL. From time to time, about ten years ago, the State of New York went through an agitation on the subject. I don't remember anything in the last ten years except that.

Mr. ELLIS. How recently, then, have you been called upon to think upon this particular question—the effect on the scenic grandeur of the falls?

Mr. HERSCHEL. Within the last few days again.

Mr. ELLIS. It is a matter you have given some thought to?

Mr. HERSCHEL. Yes; a great deal in times past.

STATEMENT OF DEWITT V. D. REILEY, ESQ., COUNSEL, LOWER NIAGARA RIVER POWER AND WATER SUPPLY COMPANY.

Mr. REILEY. Mr. Chairman, I have printed a brief statement of facts in regard to the matter I wish to call to your attention, for the individual members of the committee, which I would like to pass around, because it contains a map.

The Lower Niagara River Power and Water Supply Company is the only power company chartered by the State of New York to take water from the Niagara River which is prohibited from taking water from the river above the falls. The company was chartered in the year 1902 and was formed for the purpose of developing the power of the rapids, which are commonly called the "Whirlpool Rapids." It was

given the right by the legislature of the State of New York to take water from the Niagara River below the falls at a point outside the State reserve of Niagara, to take it through a tunnel, and return that water to Niagara River at a certain spot that was specified in the act. For what purpose that spot was specified I will show you. But first I would like to read section 2 of this act incorporating the company:

Such corporation shall have power to construct a tunnel or tunnels, pipe or pipes, under the city of Niagara Falls, extending from such point as it may select, outside of the land of the State reserve of Niagara on the easterly shore of the Niagara River below the Niagara Falls and between said falls and the southern boundary line of lot 29 of the mile reserve, to such point as it may select in lot 29 of the mile reserve, so called.

You will observe I have on this map, which I have annexed to this statement, with a blue pencil drawn the location of that tunnel, which shows that the power will be taken, that the feasible point for the taking of the power will be immediately at the beginning of the Whirlpool Rapids, which is under the steel arch bridge or just above it, and through a tunnel cutting across country about a mile and a half in extent to the Devils Hole, or lot 29 of the mile reserve. This lot 29 of the mile reserve was designated by the legislature of the State of New York as the point for the development of the power of this company for the reason that there is where an old creek, known as "Bloody Run," emptied its waters, I suppose for hundreds of years, over the cliff and gradually wore it away down in the gorge until it created at the foot of the cliff a natural excavation of 12 or 13 acres, so that the development of this company can be made at that point without any cutting away of the gorge of the Niagara Rapids or any defacement of it, and it is the only place where that can be done between the Shallowcroft plant and the village of Lewiston.

That, in brief, is the statement of the object and purpose of this corporation. They think that their projected development is in entire harmony with the aims of this committee in the preservation of the scenic beauty of the falls. They will add to the scenic beauty of the rapids by displacement and removal of a Raines-law hotel for a beautiful power house. They have purchased lot 29 at great expense, and they have secured a right of way for their tunnel, and they were just on the point of securing land for their intake when this bill was introduced which prohibited them from diverting any water from the Niagara River. We therefore come before this committee believing that the charter and aims of this company were not known to those who framed the bill, and that the bill should be confined in its operation to those companies which are authorized to take water from above the Niagara Falls.

Mr. JONES. How does this bill affect those taking the water out below the falls?

The CHAIRMAN. By the terms of the bill this company is clearly included, because the Niagara River is mentioned?

Mr. REILEY. Yes.

The CHAIRMAN. Is there any limit on the number of cubic feet you can take, according to your charter?

Mr. REILEY. We are limited to 200,000 effective horsepower.

The CHAIRMAN. What is the fall?

Mr. REILEY. There is a drop between the point of intake and lot 29 of about 83 feet.

The CHAIRMAN. How many cubic feet would it require to create 200,000 horsepower?

Mr. REILEY. I don't know that.

The CHAIRMAN. Do you know whether any computation has been made?

Mr. REILEY. Yes; it has been made, but I was unable to get hold of the engineer who made the computation before coming here. The engineer was Mr. Wallace Johnson, of Niagara Falls.

The CHAIRMAN. Of course this project is on an entirely different footing from the others we have been considering. I do not know that it is necessary to go any further into it.

Mr. REILEY. I should like to call the attention of the committee to the fact that the point where we are compelled by law to take our water from the river is below the point where the river has been restored to its normal flow by the power companies. All the water diverted by the present plants restore their water above the point where this company takes its water.

The CHAIRMAN. The General Electric Company is to return their water at the same point?

Mr. REILEY. Yes; to lot 29; but there is plenty of room for both.

The CHAIRMAN. Where does the Lake Ontario and Niagara Power Company restore its water?

Mr. REILEY. In Lake Ontario, away below.

Mr. ALEXANDER. Is there any navigation between the point of intake of the water you will use and where you restore it?

Mr. REILEY. No, sir. Captain Webb navigated it once.

Mr. DAVIDSON. Is there any other proposed diversion below the Falls?

Mr. REILEY. No, sir. this is the only one.

Mr. DAVIDSON. On either side?

Mr. REILEY. I do not think there is any proposed diversion on the Canadian side. This is the only one authorized on the American side.

The CHAIRMAN. This is absolutely the pioneer company on either side?

Mr. REILEY. Yes, sir.

Mr. JONES (addressing the chairman). Is there any reason why this bill should apply to this?

The CHAIRMAN. I do not think we ought to give an affirmative or a negative answer to that question just now.

Mr. ELLIS. Do you concede the jurisdiction of this committee in reference to your enterprise?

Mr. REILEY. I do not think this enterprise, being on such a very different footing from the others, that I ought to enter into that, but I will be glad to do so if you would like me to.

Mr. BEDE. I would like to ask Mr. Greene if the counsel for these various corporations have agreed that electricity is not a thing that can be taxed, and therefore prohibited from importation. Is that the general feeling? If we can not tax it, I suppose we could not prohibit it from importation, as this bill provides?

Mr. GREENE. I will give you a layman's answer. The Secretary of the Treasury, during the last eighteen years, has three times been

asked the question whether there is a duty on electricity, and he has replied no.

Mr. BEDE. I understand there is not, but does that mean that we could not impose one? That is the point.

Mr. GREENE. I think the Secretary of the Treasury could not give any answer, nor could I.

Mr. DAVIDSON. I do not suppose you would controvert the proposition that if the Government wanted to fix a duty on it or stop its transmission it could do so?

Mr. GREENE. It would find a way to do so, I imagine, as a layman.

Mr. ELLIS. Supposing it to be conceded that the diversion of this water by these power companies is to affect the scenic spectacle, and the jurisdiction of Congress to have charge of that matter be conceded, in your view what would you think of the practicability of prohibiting the admission or transmission of power from the Canadian side into this country as bearing upon that question of diversion—preventing diversion?

Mr. GREENE. Answering that question as a layman, I do not see what power you have got under the constitutional right to regulate commerce to call that commerce for another purpose.

Mr. ELLIS. But conceding we have the power to call or make it commerce, the point I want to make is this: Would we be promoting our ends by preventing the transmission of Canadian power to this side?

Mr. GREENE. You would not promote your ends; you would defeat them.

Mr. ELLIS. That is your opinion upon that proposition?

Mr. GREENE. Yes.

The CHAIRMAN. Suppose, General, this power should be created by coal or wood or charcoal on the Canadian side and was being transmitted into the United States. Would you say there was any question about the right to prohibit its introduction or to impose charges on the right to introduce it?

Mr. GREENE. Now, Mr. Chairman, with all respect, you are an eminent lawyer, which I am not, and we have brought three lawyers here to answer legal questions. Yesterday you took the liberty, Mr. Chairman, of questioning a gentleman on things he confessedly did not know about, and he answered them in such a way that you attempted to and I think succeeded in throwing discredit upon certain parts of his testimony. The question you ask me is a legal question, and I think you should let our lawyers answer it.

The CHAIRMAN. Well, I will ask it in another form. Would you say the Government might not exercise such a right?

Mr. GREENE. As a layman I should say that it could not properly exercise such a right.

Mr. LAWRENCE. And as a layman you would also say that if we did exercise such a right we would be defeating our own end? Do you mean we would drive American industry to Canada?

Mr. GREENE. Yes.

Mr. LAWRENCE. And that the development of power would go on there?

Mr. GREENE. Yes; and as a commerce committee you would defeat the ends of American commerce and industry.

The CHAIRMAN. Here is the question right here. I might as well ask you the direct question. You know as much about it as a lawyer. What assurance have you if we seek to limit the diversion of water—to place a limit on what can be developed on the American side—that there would not be a great development on the Canadian side immediately following for power to be transmitted to this country?

Mr. GREENE. I think you would have no right to assume that the people of Canada are less interested in the preservation of Niagara Falls than you are, and your question does assume that fact.

The CHAIRMAN. Suppose, however, our authority is limited to restriction on this side, and we must take the most effective steps we can to prevent the depletion of the water, our authority is limited to that power which is developed in the United States or transmitted into the United States; suppose that is the fact. Would it not be a judicious course to pursue to adopt the most effective measures within our power?

Mr. GREENE. In answer to that I would say no one has constituted you the guardians of Canada, and that you would have to confine yourselves to where your jurisdiction ends.

The CHAIRMAN. I don't exactly see—

Mr. GREENE. You are intimating that Canada is going to let all the water go into power companies, even after the United States has stopped them on this side. I say you have no right to assume that; and even if that assumption was correct, you have no right to interfere with the Canadian rights, if Canada is not willing to join you in stopping the destruction of the falls, which I think they are; but if not, you have no power to compel them by attempting to interfere with their plans; that is, in the matter of bringing their electricity in here.

The CHAIRMAN. I do not quite comprehend you on that. We have had for many years in this country a protective tariff keeping out articles, and I do not hear that we are attempting to regulate exporting companies by imposing that duty. Do you not misapprehend the nature of this measure? It is confessedly temporary, because it is only for three years' operation. It seems to be certain that there is a present situation which is to be met, something must be done. This bill is altogether exceptional in its nature; indeed, I do not recall a similar bill the life of which was limited to three years. Do you understand that phase of it?

Mr. GREENE. Yes, sir.

The CHAIRMAN. How it is seeking to regulate the affairs of Canada I am unable to see.

Mr. GREENE. The drift of your question was, as I understood it, that even if you stop taking water out on the American side it could still be taken out on the Canadian side—

The CHAIRMAN. It might be a check on the use of power over there, but it is a check on the development of power for transmission to the United States, and how we can abdicate the right to determine what shall be brought into this country without abdicating the right to control that river, I am unable to see.

Mr. GREENE. Have you ever prohibited the importation of other things except by police powers, prohibiting things that are dangerous to health?

The CHAIRMAN. There have been a great many prohibitions, and it seems to me that the right to prohibit in this case clearly exists. There may be something in the question raised by Mr. Locke, that it should not apply to one locality only, but rather to all localities. I should be inclined to think, however, that that was not a valid objection. But the question is this: Is the preservation of Niagara Falls worthy of attention, or is it not? That is a simple question. Now, is it likely that any regulation would be effective if it is made possible to continue the depletion upon the other side without any limit?

Mr. GREENE. All your lawyers are agreed upon one thing, and you yourself have, I think, acted on that line—that the best way to proceed on this is by treaty. No one disputes your right to proceed by treaty. Now, without attempting to proceed by treaty, you are proceeding upon the theory that the people on the other side of the river have different views in regard to the preservation of the falls, and that you must prevent them from carrying those views into effect. I say that presumption is not warranted, nor are you authorized to interfere with their plan if it was warranted.

Mr. JONES. But suppose that were warranted. This is a practical question now. Then, would the prohibition of sending their power over here stop the diversion of the water on that side?

Mr. GREENE. I don't think so.

Mr. JONES. Why not?

Mr. GREENE. They would locate all their industries on the other side, I think. A power house like this employs very little labor, probably 50 or 60 or 70 men can run that power house, but the power there produced will give employment to possibly 300,000 or 400,000 men; those are the industries where the final investment will be made. Those will go on the other side of the river if you will not let them come in.

Mr. LORIMER. Would the cheapness of the power over there offset the protective tariff they would have to pay to send their goods across the river? You say they would go across the river and get their power at a cheaper rate. Then they would sell their goods in this country. Is the cheapness of the power an offset to the protective tariff they would have to pay?

Mr. GREENE. Well, you drive them from there because you won't let them get the power at any price, and, secondly, to answer your question, I think the cheapness of the power close to the falls on the other side would be sufficient to overcome the present protective tariff.

Mr. LORIMER. Let me make a statement and ask you another question. Every industry that I know of in this country that has branch factories in Canada has established branches there because of the money they will save on the raw material they get close at hand there, and on account of the tariff they have to pay to the Canadian government, and I have not found any instance where they have gone there on account of the cheapness of power, even on rivers where power is obtainable. What have you found in that respect?

Mr. GREENE. Because up to the present time you use the power on this side or bring it in. But if you prohibit the bringing of it in then the power will be in competition not with hydraulic power on this side, but with coal. As pointed out by Mr. Cravath, several of his clients have gone to Shawinigan for cheap power.

Mr. LORIMER. Do they sell their goods here or there?

Mr. CRAVATH. In Shawinigan chiefly. In industries like the carbide industry and aluminum industry, where electric power is the great item of cost, they can afford to go to Canada for cheap power and pay the duty into this country.

Mr. LORIMER. How would it be with steel and iron industries, for instance?

Mr. CRAVATH. The duty would be the controlling factor there. There are a great many industries where electric power is the great item of cost, especially such industries as the carbide and aluminum industries.

(Thereupon, at 1.30 p. m., the committee adjourned until tomorrow, Saturday, April 21, 1906, at 10.30 o'clock a. m.)

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Saturday, April 21, 1906.

The committee met at 10.30 o'clock a. m., Hon. Theodore E. Burton in the chair.

The CHAIRMAN. Is there anyone here who has already been heard who desires to present any further views on the subject?

Mr. VEILÈ. we would like to hear your views concerning what effect the withdrawal of water at Chicago for the drainage canal has on the flow of Niagara River.

**STATEMENT OF MR. M. A. VEILE, ENGINEER, NIAGARA COUNTY
IRRIGATION AND WATER SUPPLY COMPANY.**

Mr. VEILÈ. It is my understanding that approximately 10,000 second-feet of water will be diverted for the Chicago Drainage Canal.

The CHAIRMAN. Fourteen thousand feet ultimately.

Mr. VEILÈ. Fourteen thousand feet ultimately.

The CHAIRMAN. Eight thousand feet for Chicago River, 4,000 for the Calumet River, and 2,000 feet for a sewer at Thirty-ninth street, although they think it possible that the Thirty-ninth street sewer or channel may be abandoned after the water flows through the Calumet River and the drainage canal. Twelve thousand or 14,000 cubic feet is the ultimate amount.

Mr. VEILÈ. I have considered that the amount of water which is used in the Chicago Drainage Canal or any of those systems should be charged to the amount that is used for domestic purposes, and it should not be considered water used for power purposes. That water which is taken at Chicago, diverted and used in that way, is absolutely essential to the health of several million people. It keeps the waters of the lake pure, instead of contaminating them the way they have been contaminated in the past, and for that reason we have claimed, and still feel, that it should not be considered in connection with the power developments at Niagara. At the same time any water which is diverted in that way is prevented from passing over Niagara Falls, as there are two ways in which the water can

get out of the Great Lakes—one over Niagara Falls and the other by evaporation. The evaporation depends on the surface exposed to the air, and the amount taken out for the Chicago Drainage Canal would not make any appreciable difference in the amount which is used up in evaporation. So I think that we have to allow that that is taken away from the falls, but——

The CHAIRMAN. Practically the full amount?

Mr. VEILÈ. I do not see any other way to charge it up. I would like to charge it up to some other source if I could, but I do not see any other way to dispose of it. At the same time I think we have to consider the almost infinitesimal effect which that water has on the falls—which the taking of that water has on the falls.

The CHAIRMAN. Of course one diversion might not have any effect——

Mr. VEILÈ. You have to consider the sum of them, of course.

The CHAIRMAN. But the aggregate will have a great effect?

Mr. VEILÈ. Yes; the aggregate will have an effect.

Mr. JONES. You would not consider 14,000 cubic feet per second as infinitesimal?

Mr. VEILÈ. I would as far as any effect on the appearance of the falls is concerned.

Mr. JONES. But in connection with other diversions——

Mr. VEILÈ. As I say, you have to consider the sum of the diversions and the question of whether the sum of the diversions is not well within safe limits or well within any limit which would affect the scenic beauty of the falls is a question we have to consider.

Mr. DAVIDSON. And in making any deductions from the amount diverted do you think there should be a consideration of the purpose for which the diversion is made?

Mr. VEILÈ. Yes. The Deep Waterways Commission made a distinction as between the water which is used for domestic or navigation purposes and water that is used for power purposes. I am simply keeping that distinction, and only state that I feel that this water should be put on one side and not the other.

Mr. BISHOP. You would consider, then, that Lake Huron and Lake Michigan are one basin, and whatever water is drawn from the Chicago Drainage Canal would be that much less for the St. Clair and Detroit rivers?

Mr. VEILÈ. Whatever is tributary to Niagara Falls should be considered as the same basin. It has the same watershed, and should be considered the same basin.

Mr. BURGESS. Taking the water that flows through Niagara where it is rapid, the quantity taken out from Chicago would not reduce the water in proportion, would it? Is not that the view of the engineers?

Mr. VEILÈ. I suppose it would reduce the level very little, but you would have the same amount of water missing in the Niagara River that was taken out for the drainage canal, I suppose, unless the level of the Lakes changes—and it is changing; they change from causes entirely unknown, but entirely independent of anything we do at the falls, or which they do at Chicago. I believe at the present time the level is rising.

Mr. BURGESS. I understood from some of the engineers that as you get closer to the falls, taking out a given quantity of water has a greater effect on the depth of the falls.

Mr. VEILÈ. The question of where you diverted the water, at what point you took away the water above the falls, would have very little effect on the falls; it would make very little difference at what point in the Niagara River that water was diverted.

Mr. BURGESS. Is that your view?

Mr. VEILÈ. Yes; that is, if it is far enough above the falls so that you do not take it altogether from one side. If you took it from the American side, for instance, below Goat Island, it would divert the water altogether from the American Falls. If you take it far enough up the stream, you divert it from the entire stream.

Mr. JONES. I understood Mr. Randolph, of Chicago, to claim the other day that the taking out of this water at Chicago would have very little effect at Niagara. You do not agree with him?

Mr. BURGESS. And I think that is what Mr. Cooper said, also.

Mr. JONES. I did not hear Mr. Cooper's statement.

Mr. VEILÈ. Mr. Cooper said it would have very little effect on the falls—that is, it would hardly be appreciable.

Mr. JONES. You do not agree with Mr. Randolph, of Chicago?

Mr. VEILÈ. No, sir; I do not.

Mr. JONES. It illustrates the mutability of expert testimony.

The CHAIRMAN. Your interpretation of Mr. Cooper's statement is not that he thinks the flow over the falls would not be diminished by diverting water for the Chicago drainage canal, but that he thought it would have no appreciable effect on the scenic view of the falls?

Mr. VEILÈ. That is my understanding.

The CHAIRMAN. And your opinion is that the amount diverted for the drainage canal is diverted from the flow over the falls?

Mr. VEILÈ. Yes, sir.

The CHAIRMAN. Practically the full amount?

Mr. VEILÈ. I don't know of any other way to consider it.

Mr. BEDE. That is on the ground that the evaporation is the same?

Mr. VEILÈ. Yes, sir.

Mr. BEDE. The same surface to evaporate from?

Mr. VEILÈ. Yes, sir.

**STATEMENT OF HON. JOHN W. GRIGGS, EX-ATTORNEY-GENERAL
OF THE UNITED STATES, WHO APPEARED AT THE REQUEST
OF THE MERCHANTS' ASSOCIATION, OF NEW YORK.**

Mr. GRIGGS. Mr. Chairman and gentlemen of the committee, I have been asked to speak upon the questions arising under this bill which may be termed legal, and in that term would be comprehended both the legal rights of the riparian owners upon the Niagara River, the rights of the State of New York in the river, the rights of the United States over the river and its waters, both in respect to navigation and in respect to national defense and the international questions also arising out of the fact that the river constitutes the boundary between this nation and another, and is thereby made subject to regulation by international treaty or agreement.

The rights of a riparian owner upon the banks of the Niagara or St. Lawrence River, as I understand them, are merely the right to use the waters as they flow by the property for the ordinary uses of a riparian owner, but the title of such riparian owner on this river,

as I understand the decisions of the State of New York, does not extend to the middle thread of the river, as is the case with private rivers and lands abutting thereon, but the title of the bed of the stream from the watermark—I won't say whether high or low water mark, but the ordinary watermark—to the middle of the stream, and jurisdiction over it as well belongs to the State of New York, so that no power company can correctly assert that it had any title whatever in the bed of the stream from the boundary of the river to the middle thread thereof. Whatever local jurisdiction and control there is over that portion of the river is vested in the State of New York, because to the middle thread of the river the *locus in quo*, if I may use an old lawyer's term, is subject to the jurisdiction of the State of New York for all such purposes as a State is entitled to exercise jurisdiction. But the rights of the riparian owner and the rights of the State of New York are subordinate and subject to the paramount rights of the nation, and I will consider first the rights of the nation arising from only one aspect of the case, and that is navigability of the stream.

Upon the principle which has committed to Congress the right to regulate interstate commerce the United States may, through its executive officers and its courts, if Congress vests in them authority and jurisdiction, control the navigable streams of the United States, and that without regard to who may own the bed of the stream, and it was decided by Justice Bradley, of the Supreme Court of the United States, in a case in which New Jersey was one party and the Staten Island Railroad and Ferry Company was the other party, that the United States might authorize the construction of a railroad and a bridge across navigable waters, the title to the bed of which was vested in the State of New Jersey, without any compensation whatever to the State of New Jersey, and in spite of the fact that the legislature of the State of New Jersey had passed a law forbidding any such structure to be erected without consent of the State. I have not the reference to that decision, but it has frequently been cited in the Supreme Court of the United States, although the case did not come there, and it is recognized now as settled authority.

The extent to which the United States, through Congress, has heretofore exercised this jurisdiction to regulate navigable streams is not the fullest extent to which that power may be extended. I think some confusion has arisen in the minds of counsel who have addressed the committee on behalf of the power companies with reference to this particular subject, because of the language and framing of the statute under which suits heretofore have been maintained or action heretofore has been taken by the Secretary of War to prevent structures and diversions that would interfere with the navigability of the stream. The river and harbor act of 1890, I think it is, authorized the Attorney-General of the United States to bring a suit in equity to enjoin any structure in or upon a stream which would interfere with the navigability of the stream, and it was under that statute that the suit of the United States *v.* Rio Grande Dam and Navigation Company was prosecuted. The State itself there limited the right to sue to the ability of the United States to prove an actual or threatened impairment of navigability. But the courts have never held that Congress was without power to decide itself absolutely what structures should be permitted and what structures could not be permitted,

upon the ground that in the judgment of Congress, without the right of appeal to the courts, it was to the interest of the United States to preserve navigation and prevent those particular things; and so I think that when Congress, exercising its right to control the navigable streams of the United States, says as to a particular river—and we will instance here the Niagara River—that no water of the river shall be diverted at the Falls by any public corporation, even though it is put in below, that that would be a legitimate and constitutional exercise of the power of Congress over this subject.

Of course, a purely intraterritorial river is subject to the jurisdiction of Congress only because of its navigability, and if, as a matter of fact, it is not navigable, Congress has no jurisdiction over it. But it does not rest with the courts to determine what things Congress, in its wisdom, may say may not be done to affect the navigability: what the purpose and plans of Congress may be, or of the executive department carrying out the laws and will of Congress, it is not for the courts to say; and if Congress, exerting this power to control navigable streams and prevent interference with and diversion of water, sees fit to say that this or that kind of diversion shall not take place, I take it that their declaration on that subject is absolute proof that that kind of a diversion would be an injury to navigation and that that kind of diversion ought to be prevented in the interests of navigation. At any rate, if the object were one of great public benefit, if the purpose to be obtained were a very meritorious one, Congress, in my opinion, would be justified in asserting the power, in putting the power into a statute in time to preserve the rights of the Government before they are lost by delay by acquiescence or laches, which might make it very difficult or very unjust to assert the extreme right. I say Congress would be justified in asserting the very extreme claim of right in a statute and leaving it to anybody that thought he was aggrieved to resort to the courts to have his rights defended and preserved, if they had been impaired. But the right over this particular river, the right of Congress to control the diversion of waters of the Niagara Falls, need not rest in the slightest degree upon the navigability of the stream. If it were a trout brook up which even a skiff could not go, the Congress of the United States has absolute power to control it, and that is upon the ground that it is a frontier river, a boundary river between this nation and another.

It is conceded public law, no one will question, that without any grant in the Constitution of the nation it has an inherent power—a power of every nation—to protect itself at the frontier against what lies beyond. And therefore from time immemorial nations whose boundaries consisted of rivers, whether navigable or not, have exercised both independent and joint control over those rivers, sometimes by independent action relating only to their own side, sometimes by stipulation and treaty governing by mutual agreement the use of the whole stream on both sides.

Now, the reason for this is perfectly apparent. It arises for one reason out of the right of self-defense. The nation has a right to say what may be done or what may not be done at its frontier on a boundary river in the interest of national protection and defense, and the States and the citizens hold whatever rights they hold subordinate and subjected to that paramount right, and it is not necessary that the nation shall wait until it is in the conflict of war to

assert those rights; it has a right to assert them for the purposes of peace. The United States has absolute power to say at what points on its frontier either merchandise or individual persons may enter its territory and how they may enter; it has absolute control over international commerce; it has a right to establish a line of pickets along the frontier, whether it be on land or water, and forbid any person, or such persons as it sees fit to designate, from crossing the river into our territory, or from going from our territory into the opposite territory.

I think if you gentlemen will consider for a moment what must be the powers of a nation with reference to its frontier you will find no difficulty whatever in this subject, and therefore in its constitutional jurisdiction you are seeking, for you have it on these two explicit grounds—on the last one as fully as it could possibly be desired.

Further than that, this bill deals with the subject of transmitting power from the Canadian side to this side. Can there be any question of the right of Congress to control that? If they can prevent the Canadian fishermen from bringing his catch across Niagara River or across the river at Thousand Islands into the United States and selling the fish, can not they prevent the power company from running its wire across the river and transmitting its power? It has been decided by the Department of Justice in an opinion which seems to have been accepted on all hands as expressing the law of the case that no person has a right to make an actual material connection of the soil and territory of the United States with a foreign territory without the consent of this nation, even though Congress has never acted upon that subject.

You will find the opinion I refer to in the opinions of the Attorneys-General about the beginning of 1898. The opinion was written by the Solicitor-General, Mr. Richards, now judge of the United States circuit court for Ohio, and it is a very able opinion, and the reasoning of it is absolutely sound, and it has been the practice for more than a quarter of a century to require any company desiring to lay a cable on the shores of the United States to connect it with a foreign country to obtain the consent of the Government, and when an attempt was made by the French cable company to land a cable on Long Island without that consent a suit was begun in behalf of the Government without any statute to authorize it, merely asserting its sovereign jurisdiction, and although that suit was never decided, the principle of it was practically acceded to by the cable company in complying with the demands of the Government and securing consent upon the terms that the Government demanded.

Now, if they can not land a cable to transmit intelligence, can not Congress forbid their landing a cable to transmit electrical energy?

Reference has been made, I notice, in one of the arguments that I have had the briefest opportunity to look at, to the case of the United States *v.* The Rio Grande Dam and Irrigation Company, decided in 174 United States. As I have said before, that case was decided under the act of 1890 or 1891, which gave the Attorney-General the right to bring an injunction suit to restrain any interference with navigation. It was also based upon another ground, namely, that the Rio Grande River along the boundary of Texas was a boundary stream, and that the United States was bound to protect

it against the depletion of its waters under the obligations of comity with a neighboring country. But the court did not find it necessary to decide the case on that ground at all; but I want to read what they say about it.

Referring to that subject, it says that such questions might, under some circumstances, be existing and important; but here the Rio Grande, as far as it is a navigable stream, lies as much within the territory of the United States as in that of Mexico, it being where navigable the boundary between the two nations, and the middle channel being the dividing line.

Now, the obligations of the United States to preserve for their own citizens the navigability of its navigable waters is certainly as great as any reason of treaty or international law to their citizens, and if the proposed dam and appropriation of the waters of the Rio Grande constitute a breach of treaty obligations or of international duty to Mexico, they ought to constitute an equal injury and wrong to the people of the United States. We may therefore properly limit our inquiry to the effect of the proposed dam and appropriation of waters upon the navigability of the Rio Grande.

They found sufficient jurisdiction in that case to sustain the bill. I think that, Mr. Chairman, comprehends all the points that I desired to lay before the committee.

MR. BEDE. I have found Mr. Griggs's argument very convincing to me, but I would like to ask him this question: The titles of the bills introduced are for the preservation of Niagara Falls—

MR. GRIGGS. That is all of it?

MR. BEDE. And for other purposes. That goes in all the bills. The point with me is that Niagara Falls itself is an obstruction of commerce. What do you think of a bill the purpose of which is to preserve the obstruction to commerce?

MR. GRIGGS. It may be that it is an obstruction to commerce at present, but it does not follow that it will always be. We do not know what the future may hold with reference to the desirability of the United States continuing to hold that and utilizing it for the benefit of commerce. Commerce does not include only navigability.

MR. BEDE. Does a court take into consideration the title of a bill and the purpose of Congress as expressed by the title?

MR. GRIGGS. I would say this: It was argued in the Oleomargarine cases, which Congress had constitutional jurisdiction of, according to the claims of those who favored it, because it levied a tax on oleomargarine—it was argued there that the real principle of the thing was that Congress was not frank; that their object was to prevent the manufacture and sale of oleomargarine, and that the object stated was simply an excuse, and the Supreme Court held that the court could not go behind the declared purpose of Congress.

MR. BEDE. That is what I was afraid of. They have power over navigation, but whether they have the right to preserve an obstruction to navigation.

MR. GRIGGS. If you consider this in the light of a boundary river you are free from that.

MR. DAVIDSON. I would like to have you express your idea a little more fully as to the right of Congress under the inter-state-commerce clause of the Constitution to regulate commerce as distinguished from the regulation of the navigation on the river. You made some reference to it in your reply just now.

Mr. GRIGGS. I suppose they can regulate the rates that people would get for carrying on the Niagara River as one regulation. Is that what you mean?

Mr. DAVIDSON. Not quite. Could they use the water of the river, or the condition in which the river is, for any scheme by which commerce might be benefited?

Mr. GRIGGS. Could the United States?

Mr. DAVIDSON. Could the United States, outside of the use of it to float a ship?

Mr. GRIGGS. Absolutely; they can make a canal of it, subject to the rights of Canada; they can use the power, divert it there, and build a canal like the Welland Canal, for instance. There is no question about that, I think. Your chairman will tell you that he would believe that.

Mr. DAVIDSON. Well, would it go any further than that, if it can be imagined that any other use of the condition there in the interest of commerce and outside of the small matter of transporting, making a passage for a boat?

The CHAIRMAN. An extreme question would be this: Suppose there were a lateral canal there in which there were locks, for the operation of which power was required. Could the power derived from Niagara Falls be used to operate that?

Mr. GRIGGS. By the United States?

The CHAIRMAN. Yes.

Mr. GRIGGS. I have not the slightest doubt of it. They could use that power just as well as they could use the water that flows over by the current to carry the ship down.

Mr. DAVIDSON. That is the idea I wanted to get at, that they could use the river and its conditions, creating power or anything else that would be to the advantage of commerce.

Mr. GRIGGS. Absolutely.

Mr. SPARKMAN. Assuming it is practical to canalize that river, beginning above and going below the falls, and considering further that it would be advisable at some time to do that, would the Government then have to condemn the property of these companies, the companies that are using the water for the purpose of creating power, electric power?

Mr. GRIGGS. I would not want to answer that question positively. It would be a very interesting and difficult question, and the longer Congress remains silent on the subject the more difficult the question will be and the more unjust it will be to interfere with these people. The sooner Congress acts the less they will have to pay, if anything. I do not say they will have to pay anything.

Mr. SPARKMAN. I understand you to contend, however, that Congress has power to deal with the river and falls independent of the question of navigability?

Mr. GRIGGS. Yes, sir.

Mr. SPARKMAN. Do you think that Congress, either for one purpose or the other, would have exclusive power to say just what could or could not be done there?

Mr. GRIGGS. I think they would have the exclusive power.

Mr. BURGESS. Here is the situation that confronts us: Whatever the powers of Congress are they have not been exercised. The powers of a State for other purposes have been exercised, and invest-

ments have been made under charters authoritatively granted by the State. Would the courts permit Congress to destroy those investments by the exercise of any power, conceding it had the right? That is the same question asked you by your neighbor there, just in another form.

Mr. GRIGGS. I do not wish to give a positive opinion on that, but I say this: If there had been a law of Congress forbidding it of course they could recover no compensation, and the sooner you pass a law of that kind the less of this kind of compensation you will be liable for. I would say this as to the equity of it: That without regard to the right of a person, when Congress has been silent, stood by and seen people in good faith invest their money—they ought to be sure it is a real investment, and not watered stock—they ought not to let those people lose their money. I do not think it would be right for Congress to sit still and let people make bona fide investments on the strength of that silence, and then boost them out without paying them for it. And that necessitates Congress saying something very quickly on the subject.

Mr. BURGESS. I thought maybe you had looked into that particularly.

Mr. GRIGGS. No; I have not.

The CHAIRMAN. One question a little in the line of what Mr. Bede asks: To what extent can the court in passing upon the bill consider the real motive in passing the bill? This bill has in its title this, "for the control and regulation of the waters of Niagara River, for the preservation of Niagara Falls, and for other purposes." As it seems to me, there is a question of navigation there which assumes very considerable importance. But suppose in attacking the validity of the measure some person should say the real object of that bill was the preservation of Niagara Falls, how far would you say the courts could take up that question and consider the actual motive?

Mr. GRIGGS. I would say this: That the judicial department will never question or inquire into the motives of Congress in passing an act upon a subject over which they have jurisdiction. That was demonstrated by the frequent decisions of the Supreme Court in the tariff acts, where they have been assaulted upon the ground that they were not intended to produce revenue, but were intended to protect manufacturers. The courts have always refused to listen to that plea. The same suggestion of improper motive was raised in the Oleomargarine cases. The court will only inquire whether there was constitutional authority for doing that particular thing, and what the motive of Congress was they will not permit to be questioned.

Mr. ALEXANDER. Do you regard navigability of a stream as a question of fact?

Mr. GRIGGS. It is a question of fact under the statutes as they stand now, because the laws apply only to those which are navigable, and there is necessarily a question of fact in any suit instituted.

Mr. ALEXANDER. If it is a question of fact, General, would the courts have a right to review the question?

Mr. GRIGGS. Well, I would confine that answer to the Niagara River. There is no question but what that is a navigable river. The fact that it is not navigable for boats over the falls and immediately below the falls would not affect the question whatever, because it is a navigable river above and below, and the court would never

inquire whether Congress had abandoned forever the right to make it navigable between those two points.

Mr. ALEXANDER. I was seeking your opinion, General Griggs. If navigability is a question of fact, would the court have a right to pass upon the question regardless of the Niagara River?

Mr. GRIGGS. I will answer your question that I think the courts would have a right to decide that a river which Congress had declared to be navigable was not navigable if the facts proved it, sir.

Mr. ALEXANDER. In your letter of January 31, 1906 (and I ask this question by request), you say, "For the purposes of ordinary domestic jurisdiction the river on this side to the center line thereof is under the jurisdiction of the State of New York." I simply ask if that is still your opinion?

Mr. GRIGGS. That is my opinion; yes. I mean by that that crimes committed on the river to the central line are within the State of New York and subject to be tried and determined there, and it is in that sense within the jurisdiction of New York, subject to the paramount jurisdiction of the United States for regulating navigation and for regulating the international boundary.

Mr. DAVIDSON. On that other question of navigability of the river, would the court inquire into the fact as to whether a particular portion of the river was navigable in fact, if it was recognized that other portions of the river were navigable in fact?

Mr. GRIGGS. I do not think they would, if they held in a case that the fact that the river is not navigable at certain points does not make it a nonnavigable river.

The CHAIRMAN. That is, the river must be taken as an entirety?

Mr. GRIGGS. Yes; as an entirety.

Mr. HUMPHREY. Do you remember that case?

Mr. GRIGGS. No.

(A gentleman on the side made a suggestion that the reporter could not hear.)

Mr. GRIGGS (continuing). It was in the Federal courts, the courts have also decided this: That Congress for improving navigation may utterly destroy and abandon a channel of a river in one place and run the channel somewhere else. and are under no obligations to pay damages to those that border on the old channel.

Mr. SPARKMAN. You say that, taking everything into consideration, Congress has the exclusive control over such a stream as Niagara River and the falls not only for the purposes of navigation, but for other purposes, which you explained a moment ago. Excluding those other purposes, would you think it had exclusive power to deal with the question of navigability?

Mr. GRIGGS. I think it has.

Mr. SPARKMAN. Assuming it has navigability?

Mr. GRIGGS. Yes; that is to say, subject to the rights of Canada, of course.

Mr. SPARKMAN. You have just stated that you thought the court would have a right to say a stream was not navigable, although Congress might declare it to be.

Mr. GRIGGS. I think so.

Mr. SPARKMAN. But assuming that a stream is navigable in point of fact?

Mr. GRIGGS. Then their power is absolute.

Mr. SPARKMAN. Now, it is navigable above Niagara Falls and below Niagara Falls, but not at Niagara Falls. (You may have answered this question already, but I did not catch it.) If that is a fact, that the taking of water there, even though it might dry up Niagara Falls, would not injure navigation above or below, you think that Congress would still have the right to deal with it?

Mr. GRIGGS. I think Congress would have that right.

Mr. SPARKMAN. Leaving out the question of the boundary?

Mr. GRIGGS. Yes; leaving out the question of the boundary, I do. Apply it to the Potomac River, at any point where the Potomac River is navigable, or where Congress in the exercise of its power can make it navigable; Congress has the right to say what obstructions shall take place, and what are injurious to navigation.

Mr. SPARKMAN. I did not hear the first part of your statement. Do I understand that you support this bill?

Mr. GRIGGS. I am supporting the constitutionality and the policy also, although I did not speak to that.

Mr. SPARKMAN. Do you think that this meets the situation?

Mr. GRIGGS. I think it meets it very well, not only to preserve the investments already made there, but to prevent the total abstraction of water from the falls and to secure other rights which might cost the Government a good deal of money in the future.

Mr. SPARKMAN. You do not think this would raise any questions of rights that the courts would interfere with?

Mr. GRIGGS. No; I don't think so.

Mr. BISHOP. Would you think it advisable to amend the title?

Mr. GRIGGS. I never yet heard of—there is no constitutional provision in the Federal Constitution that the title must express the object of the act; but there is in most States. I have not considered that especially. If you should make it read, "For the control and regulation of the waters of Niagara River, for the preservation of navigation therein, and for the preservation of Niagara Falls," in other words, if you put in somewhere the word "navigation," I think it would not do any harm.

Mr. JONES. Then the courts would not go behind the action of Congress?

Mr. GRIGGS. No; I don't think so; and I do not think they would, anyway.

Mr. LAWRENCE. Do you think, as a matter of policy, that Congress should permit the commercial value of the falls to be utilized up to the point where it will not mar the scenic beauty of the falls?

Mr. GRIGGS. This is what I think: I think the falls ought to be preserved as they are because of their scenic beauty, one of the wonders of nature, interesting not only to the people of this country, but of all countries; I think they ought to be preserved. Now, whatever use can be made of them consistent with that I see no objection to.

Mr. LAWRENCE. Then, if the committee should conclude that a greater amount of water could be safely diverted from the river than is now being diverted you think it proper to amend the bill providing for such further diversion?

Mr. GRIGGS. Since you have asked me that, I would respectfully suggest that that judgment be placed in some executive officer or board of the Government where it can be accurately determined beforehand, and where permission must be obtained, and all the plans

and specifications and extent of the diversion be set out, and license granted.

Mr. LAWRENCE. But this bill which you favor limits the amount of water which can be diverted to the amount now being used.

Mr. GRIGGS. As to whether any more can be used without affecting the beauty of the scenery, I of course know nothing.

Mr. LAWRENCE. But you would suggest that that might be left to the discretion of some executive officer?

Mr. GRIGGS. I should think so; yes; that that could very safely be done. Of course it is impossible for a committee of Congress to grant permits, and so on. Whether you want to stop it absolutely until you get further light upon it would be another practical question.

Mr. LAWRENCE. I wanted to get your notion about it.

STATEMENT OF MR. J. HORACE M'FARLAND, PRESIDENT OF THE AMERICAN CIVIC ASSOCIATION.

Mr. MCFARLAND. Mr. Chairman and gentlemen, I fancy, from a very brief survey of the testimony so far as has been printed, that all who have been in this room this week have been here apparently for one purpose—that of preserving Niagara Falls. There seems, however, to be some difference as to the party for whom the falls is to be preserved. The engineers, the promoters, and the attorneys preceding this hearing have urged the preservation of the falls for the interests they represent. I come before you this morning representing an association which urges and respectfully demands the preservation of the falls for the people. I feel that we represent the vested rights of every American citizen in the Falls of Niagara, a right possessed by every gentleman in this room in equal proportion, and not that we represent vested rights on whatever basis those rights may be claimed. I may be wrong in that, and perhaps the contention that Niagara Falls belongs to all the world is the proper contention. Such a contention has been raised in a letter received by the secretary of our association from a French gentleman, who said—

Allow me to say that you are wrong while saying in your advertisement in World's Work that Niagara Falls belongs to all of you Americans. They do belong to nobody and to everybody in the wide world. To destroy them would be to hurt all of us fellow-men. Therefore I beg leave to inclose a contribution of 20 francs so as to become a member of your association if it is allowed to a French writer.

Mr. BEDE. What do you think of turning it over to The Hague convention?

Mr. MCFARLAND. It would be an excellent proposition, Mr. Bede.

You have had engineering and economic arguments, but I believe until this morning no unselfish argument. That is, the interests here have had in mind benefits to be accrued by a few. I am afraid that the minds of the gentlemen who have been presenting the claims to the right of the use of the water of Niagara have been based primarily on those benefits to a few. One of the large companies here admitted practical ownership by one family of vested rights which rested on a sheriff's sale. Another clamored for water, and it is alleged that its \$5,000,000 base line of the pyramid is erected with the pyramid inverted upon an apex of about \$5,000. So far as investigation can

readily disclose, not 1,000 American citizens are involved in the urgency with which claims have been brought here for the use of the Niagara River.

I speak to you, gentlemen, for millions who have evidenced their feeling in this matter most strongly, and all they say is comprised in two words—"Save Niagara!" They are not interested in the engineering details, they are not interested in the legal aspect or the economic aspect. With all due respect to the able presentation just made to you by Governor Griggs, they do not care much about the international side of it, for many of them come from the other side of the border. They simply say: "We want Niagara saved for all the people."

In looking over the reports that have been made of the testimony or statements produced in this room, I am impressed with the fact that, whereas it has been said that the law is not an exact science, this room would have seemed to furnish abundant testimony to the fact that engineering was not an exact science. Differences of a hundred per cent in the estimates of absolutely capable engineers have been produced before you. One man has said, I believe, that without greatly destroying the scenic beauty of Niagara a certain amount of water could be abstracted, while another man says that one-half as much will injure the falls. Yet another engineer speaks of the water passing over the crest as being 70 per cent in excess of that which you have before you in the report of the American members of the International Waterways Commission.

Another and most interesting claimant for 18,000 feet, approximately, in addition to all proposed diversions, insists that his scheme will increase the beauty of the American Fall and increase the quantity of water going over it. Another proves—and this, it seems to me, was the most interesting of all the contentions—that as you reduce the quantity of water which flows, over the American Fall, particularly, you increase its covering power. I could not be but very much interested in this contention, which, if I remember it, was that if the average depth was 4 feet over the American Fall and 50 per cent was taken away for the production of power for a few persons, that the depth of water would be over 3 feet.

Mr. BEDE. Two feet 10 inches, did he not say?

Mr. McFARLAND. I think something like that, or 3 feet. Now, gentlemen, if we could protract that interesting calculation I would like to be possessed of the last inch, for if it was mixed with white-wash it would make the finest spreading concern ever imagined by the mind of man. It would cover a whole lot of power fences. And again, you have had prepared for you an adornment for Niagara, for it was stated early in the week here that a great power house had been erected which was in the Italian renaissance style. Ye Gods, Niagara has waited all these years to have an Italian renaissance adornment added to her majesty!

All these engineers propose to save the falls by diversion, and every one of them is absolutely honest in hoping that that diversion will not injure the falls. That the conclusions of these people, gentlemen—and I have the utmost respect for every one of them—are in some sense influenced by their hopes, I believe you who have listened to the confusing statements from them will believe. Is it not fair, gentlemen, to stop where we are? You have had conflicting

opinions as to just how much water can be taken, how much you can pour out without having it empty, and how very strong will be the flow of the last half inch, how it will spread, but you can not be certain; there is no certain data. And yet no man of sanity will for one moment controvert the position that if you stop now the falls will be no further damaged, and we rest our case very strongly upon that irrefutable statement. A number of the interesting propositions that have been made in this respect pay some slight regard to the scenic value of the falls, but it becomes slighter and slighter and slighter as those who develop these schemes go into the details.

The people—engineers—who have spoken to you this week always started out with the proposition to save the falls, and nearly always ended with a sneer at those whom they say are moved by sentiment and who are interfering with vested interests. One gentleman, who has not been represented here, has suggested that the falls be used entirely for power exploitation for six days in the week and then permit it to run for the balance of us on the Sabbath. When that proposition was seriously made to me—and it was made in person—I asked the proposing engineer how he was going to get us to the falls on the Sabbath, and he hemmed and hawed and finally concluded that we might walk. There is no doubt of it, gentlemen, the proposition of those who are interested in the diversion of the water of the falls will willingly permit you to walk to see them. But you won't walk.

I hope you have seen a cartoon in this week's Puck, in which the artist's imagination is exerted as to the conditions that will prevail at Niagara Falls if the plans of the people who wish to divert the water succeed. Niagara Falls is shown as a great precipice, the falls being dry. The cave of the winds is shown as a cave under where the falls once poured their waters, and in there ice cream is served; that is below where the eye of man has ever penetrated so far. There is also a little place where you can buy genuine Niagara water for 5 cents a glass. The *Maid of the Mist* is now an automobile, and runs along the dry river bed and shows you the scenery. There are various other adornments, which will suggest themselves to your mind. Gentlemen, that is a cartoon, but it is very significant. It represents the way the people feel about this matter, and as I said to you, they are not very much interested in the law or the engineering aspect or the economic aspect, but they are tremendously interested in Niagara Falls. It may be fairly assumed that those who sit at the editorial tables and honestly endeavor to find out what people think have a correct idea about it, and I say that the feeling of all the United States may be incorporated in studying what they say about it, and I have the pleasure of presenting for your consideration certain letters from men of this character. I have one from Dr. Lyman Abbott, the editor of the Outlook, in which he says:

THE OUTLOOK,
New York, April 19, 1906.

MY DEAR MR. MCFARLAND: I am very sorry that I can not be present next Saturday at the Senate hearing to testify by my presence my interest in saving Niagara, but a prior and imperative engagement for that day forbids. The issue joined in this case appears to me to be one between the whole American people and a very limited area geographically, with a very small number of capitalists. Niagara Falls belongs of right to the nation. No other civilized people possesses a natural object of a similar kind parallel to it in grandeur.

The people of Georgia and Louisiana, of Illinois and Colorado, in brief, of every State in the Union, North and South, East and West, have a share in this unique cataract and an interest in its preservation. And it is proposed to ignore their right and sacrifice their interests to promote the pecuniary interests of a score or so of capitalists and serve the material interests of at best a few counties of the State of New York. The sordid selfishness of an insignificant minority who are willing to sacrifice Niagara Falls for the purpose of dividends for themselves will not succeed if the representatives of the rest of the nation are reasonably alert to the interests of their constituents. Why should the nation give to these two or three corporations for their private benefit a wealth of beauty which is one of the world's wonders and which once destroyed will never be restored?

Yours, sincerely,

LYMAN ABBOTT.

Another of the men who has had more than some of you will, perhaps, believe to do with the molding of public opinion, as evidenced recently in the courts at Buffalo, where it was shown that a certain patent medicine company secured a profit in 1903 of \$183,000 by the sale of its nostrums, and in 1905 made a loss of \$35,000, by the simple denunciation of the Ladies' Home Journal, is the gentleman whose letter I will now read:

APRIL 19, 1906.

MY DEAR MR. MCFARLAND: I wish I could come to Washington on Saturday if only to present one fact to the Senate committee, and that is the tremendous outpouring of letters that came to me directly upon the appearance of the article advocating the saving of Niagara Falls in our magazine. I tell you when a man says there is no wide public sentiment on this question he is counting without his host. Never in my editorial experience, not even in our patent-medicine agitation, was a public response so instantaneous and so widespread. The feeling, as indicated in these letters, was very pronounced and admitted of no possible question of how the public felt on this matter. Not only were these letters expressive of individual feelings, but the most powerful social organizations in the country wrote in an official way. So strong was this expressed feeling that we at once decided to print a second article, and again the letters streamed in. Hence there is no doubt as to the deep public feeling on this question. As a matter of fact, these letters show that the American people are so peculiarly sensitive on this subject that I can imagine of no greater mistake than for Congress to even think for a moment of doing aught but passing this bill. I speak with absolute positiveness when I say this, and I know only too well, as every editor does, that the public is in no present mood to let the already too-much-discussed question of commercialism in civic affairs touch their great American beauty spot.

So I beg of you to say all you can say to the committee not to mistake the temper of the American people in this matter. It is not a question of argument with them. They have only one single idea in mind as to the falls, and that is that they must be let alone; and Congress will indeed be wise if it acts in accordance with a public opinion that is, as I say, about as pronounced and absolute as I have ever seen it expressed on any subject.

Very sincerely, yours,

EDWARD BOK.

Mr. ALEXANDER. May I ask you a question?

Mr. MCFARLAND. Certainly.

Mr. ALEXANDER. Has the Ladies' Home Journal been telling as much untruths about the present deterioration of Niagara Falls as it told about the patent-medicine nostrum that you spoke of in introducing that letter?

Mr. MCFARLAND. Colonel Alexander, inasmuch as I am guilty of everything that the Ladies' Home Journal has said upon this subject, the question comes in a sense personal, and I may answer it by saying that everything that was printed in the Ladies' Home Journal with regard to Niagara Falls was obtained from Government records of the

United States or from advices obtained from the New York State reservation authorities, with the one exception of the picture representing what the falls would look like. Therefore I believe what the Ladies' Home Journal said is true.

Mr. ALEXANDER. Of course you know the Ladies' Home Journal was sued by a Buffalo firm and a very large judgment recovered because it made statements, as I understand it, that liquor was used in the nostrum, when it had been shown over and over again, and was finally established in court, that such was not the case?

Mr. McFARLAND. I am sorry to controvert you, Colonel Alexander, but inasmuch as that judgment was for \$16,000 only, as against a claim, I think, of \$250,000, and the unfortunate dependence by my editor, Mr. Bok, upon the Government analysis of that nostrum, seems to place the case in a somewhat different relation from that in which it might otherwise stand. I think Mr. Bok stood exactly on the basis that I stand. He was depending on analyses made by officers of the Government. I have depended on figures furnished by the engineers of the Government.

With your permission, Mr. Chairman, I will read you also a letter from the editor of Collier's Weekly.

COLLIER'S THE NATIONAL WEEKLY,
New York, April 18, 1906.

DEAR MR. McFARLAND: Mr. Moffett, who has charge of our news department, will write you this afternoon on the Niagara matter. We all feel very strongly about it, and by "we" I mean not only the staff of this paper, but serious journalists in general. I am sure that there is no issue before Congress at present which lies more clearly between the final permanent interests of the public on the one side and the money-making opportunities of a few men on the other. As the Burton bill avoids the Chicago difficulty, it seems to me, as far as I understand it, absolutely without any objection. Congress is criticised a great deal these days; and as long as it seems to represent the moneyed interests of a comparatively few men and to lack the courage or large mindedness to represent the permanent interests of the country it will be open to such criticism. There is no clearer opportunity to-day for a statesmanlike act that would tend to win the confidence of liberal-minded men everywhere and persuade them that Congress is capable of taking a broad and high view of its duty than is offered in the present case. I am sure that I can speak for the press over the country in saying that to kill this bill will cause bitter disappointment everywhere and satisfaction nowhere, except in the breasts of a few men who have an immediate pecuniary interest.

Very truly, yours,

NORMAN HAPGOOD.

J. H. McFARLAND, Esq.,

American Civic Association, Harrisburg, Pa.

I have also a copy of the resolution telegraphed on behalf of the Periodical Publishers' Association of America, which, with your permission, I will read:

Resolved, That the Periodical Publishers' Association of America heartily approve the bill introduced in Congress for the purpose of saving Niagara Falls by prohibiting the further diversion of water from the falls.

And it was further resolved that a copy of these resolutions be telegraphed to the representative before this committee of Congress.

That you may fully understand what this means, gentlemen, I may say that the Periodical Publishers' Association, together with those I have cited, whose letters I have read here, controls a monthly circulation of 6,000,000. What that means in an appeal to the country you

can understand; what one part of it has done in flooding some of you with appeals to save Niagara your constituents will serve to inform you; what this same body of 6,000,000 will do in sustaining you in supporting the Burton bill or any other adequate measure for preserving Niagara Falls for all the people I do not think you require any great suggestion on my part to conceive.

And so, gentlemen, I close the case for the American Civic Association to give way to others, with just a question and reiteration upon my original theory: That this is not a question of law, of engineering, of international boundary, of economics, of coal saving; it is a question of sentiment, thank God! And we stand on it. The American people want Niagara Falls saved. They are able to pay the price. They do not suggest confiscation or the hurt of any man who has made an innocent investment, but they want Niagara Falls saved, and they ask you to do what you can to save them.

MR. BEDE. You do not mean to say that Congress can act without having its action based on some such argument as Mr. Griggs has made here?

MR. McFARLAND. No, sir.

MR. BEDE. We can not act on sentiment altogether.

MR. McFARLAND. I should feel, though, that the great sentiment—expressed to-day, for instance, in voting a large amount of money for the relief of San Francisco—that same sentiment, after all, is the paramount sentiment behind law, for it makes law.

MR. LAWRENCE. In order that I could get your idea a little more clearly, I gather from what you say that you believe it was an error to have a commercial value of Niagara Falls developed at all?

MR. McFARLAND. I would go to that extent personally, but I would not want to bind my association to it. I think that great spectacles like this are the possession of the whole nation, and that it would have been a vastly better thing if years ago Congress had done with Niagara Falls just exactly what has been done with the Yellowstone National Park—set it aside as a great national possession.

MR. LAWRENCE. And therefore, that being your view, you would absolutely stop any further diversion of the water than is now being made?

MR. McFARLAND. I would stop any further diversion than is now being made.

MR. LAWRENCE. You would not go so far as to try to prevent the diversion that is now being made, would you, or would you not?

MR. McFARLAND. I may say that the present bill was drawn after very considerable conference with your honored chairman, and that it represents our views absolutely.

MR. LAWRENCE. You have been in the habit of visiting the falls frequently?

MR. McFARLAND. Yes.

MR. LAWRENCE. Have you noticed any difference in the appearance of the falls since the diversion of any water?

MR. McFARLAND. I was at the falls about three weeks ago. I could not in the very nature of things, because of the icebound condition of affairs, notice any diminution of water; but I could notice a tremendous scenic injury, for on the Canadian side, where that majestic Horseshoe Fall made the greatest impression, there is a power house, one-third its height and one-third its length, installed right

up against the precipice. I think it is an Italian renaissance power house. On the American side, along where those power plants are located, it looks like a dirty back yard where once was a magnificent cliff, and the whole condition at Niagara is retrograding to-day. If it were not for the saving course of the New York State reserve, it would be a poor-looking place. Canada is decorating it with "Cascarets" and "Wilson whisky" and that sort of thing, in addition to her power enormities. She has permitted her trolley lines to run right through there, and there is just one decent spot about Niagara Falls to-day, and that is the New York reservation. So I would say, answering your question, that Niagara Falls is retrograding as a scenic spectacle; and upon that question I would refer you to the international waterways report, where the proposition is insisted upon that the grandeur of Niagara Falls depends upon its volume of water rather than the height of the cataract.

(Mr. MacFarland also submitted the following letter from Albert Shaw, editor of the Review of Reviews:)

NEW YORK, April 20, 1906.

HON. THEODORE E. BURTON,

House of Representatives, Washington, D. C.

MY DEAR SIR: I am strongly impressed with the great desirability of the enactment at this session of a measure to protect Niagara Falls from the danger of further diversion of the water of the Niagara River. I believe that the bill now in the hands of your committee is in the line of sound public policy, and I greatly hope it may be favorably acted upon. None of us have any quarrel with modern industrial and electrical development, but there are some sacrifices we must not be asked to make even to what would seem on some grounds to be a desirable form of progress. It is a very poor country, not a rich country, that would give up its finer possessions for the practical utilities. This country is the richest in the world, and it can afford to have Niagara Falls and to protect it for all time. Land has become very valuable in the heart of New York City, but the people of this metropolis feel that they can afford to keep Central Park as a breathing spot and as a pleasure ground.

Furthermore, quite apart from what civilization and refinement and good taste demand of us in these matters, there are also business arguments that need only to be stated to be fairly convincing. A great object of natural beauty like Niagara Falls comes to be a thing of world renown. Every American expects sooner or later to see it, and thousands of intelligent foreigners have come to this country wishing first and foremost to see Niagara Falls. Such an object becomes a great national treasure and asset. I venture to say that if it were possible to find out how much Niagara Falls is really worth in dollars and cents as a thing that will be visited by countless millions in the years to come, it would be plain enough that from the commercial standpoint its preservation is imperatively demanded. I do not know what valuation the picture dealers would place upon the Sistine Madonna hanging in the Dresden Gallery, but I am inclined to think that Dresden would make a bad bargain to part with it for a hundred million of dollars, for this picture makes the fame of the Dresden Gallery and brings thousands upon thousands of people to Dresden to spend their money every year.

Just as the Sistine Madonna is the most famous picture in the world, so Niagara Falls is the most famous object of natural beauty. Congress has in its hands the power to save to the American people their great national treasure. I feel confident that our Representatives at Washington will feel that in taking prompt action they are doing a thing that is both wise and patriotic.

Believe me, very truly, yours,

ALBERT SHAW.

STATEMENT OF MR. CHARLES M. DOW, PRESIDENT OF THE COMMISSION OF THE NEW YORK STATE RESERVATION AT NIAGARA.

Mr. Dow. As a trustee of the Association for the Protection of the Adirondacks, as a trustee of the American Scenic and Historic Preservation Society, and as a commissioner of the State Reservation at Niagara, I have been deeply impressed not only with our phenomenal scenic resources, but also with the powerful public sentiment which demands their protection for the enjoyment of the people at large.

This sentiment has sprung up within a few years to combat conditions which did not before exist.

Within a short time the progress in electrical invention has led man to turn to the Falls of Niagara. Against the threatened destruction of this exceptional phenomena of nature we instinctively protest, but we do not shut our eyes to the material requirements of the age in which we live.

We must have electric light and power in this progressive age, but we have only one Niagara Falls, and we can develop our electricity at other places. We must go elsewhere and let Niagara continue her eternal chant to the might and majesty of the Creator of the universe. Niagara is not going to waste while it attracts a million people a year from every quarter of the globe to gaze upon it in wonder, and while it continues to stir the profoundest emotion of every human being with a soul to feel, a nerve to tingle, and a brain to think in the presence of this marvelous spectacle.

The overwhelming public sentiment which demanded the creation of the Niagara reservation twenty-one years ago to rescue it and which to-day cries out for the protection of the falls from the danger which threatens them is sufficient evidence that the American people as a whole have an intense appreciation of natural beauty. This sentiment in favor of the preservation of the exceptionally beautiful and inspiring in nature is a lofty and ennobling one, and it speaks well for our generation that such a sentiment should be as universal as it is.

Long before the birth of the Christian era a great Chinese poet carved on the rocks at the gorge of the Yangtze, "This is the most beautiful place in the world." On the visit of the Chinese imperial high commissioners at Niagara a short time ago the viceroy, using the same ancient and classic characters, wrote of Niagara, "This is the most beautiful place in the world." This tribute is universal, and are we not under very large obligations of duty to protect, as trustees for the world, this precious heritage of nature? Have we not enough national pride, as Americans in the eyes of the world, to prevent the destruction of the glorious beauty of our famous cataract?

The great factor of its fame is its intrinsic grandeur. Coming not from its height, but from its seemingly immeasurable volume and force, giving the sense of overwhelming and irresistible power and majesty.

Niagara is not to be described. It is too close to the infinite source of all things to come within the range of human words. In some respects Niagara is finite, and it has its limits, unfortunately, as we

shall see presently. You can measure the number of cubic feet of water that pass over it a second. You can ascertain its height to an inch. You can calculate to a horsepower the electrical energy which it will generate. All of these things can be stated in words and figures. And yet Niagara is not described, and the question which lies back of all of it—the question of the source of this eternal round of evaporation, cloud, rainfall, riverflow, and waterfall—remains unanswered, except in the inexpressible thoughts of the believer.

Niagara is a thing to be seen and to be felt in very presence. It can not be apprehended through the words or art of another. And that is our great reason why Niagara should be perpetuated, so that it may come within the personal experience of generations to come. Historian, poet, artist, and scientist may summon the utmost resources of their art and craft to delineate the cataract, but Niagara can not be perpetuated in book, poem, painting, or scientific treatise. Niagara once dried up will be lost forever, and the human race will no longer experience those exalted sensations and emotions which can be felt only in the actual presence of the great cataract.

In what I have just said I have implied a paradox. I have said that Niagara is so near the infinite that it is indescribable in finite terms, and yet that it really has its limitations. Therein lies a double danger to the falls. On account of the actual limitations on the volume of Niagara River, the falls can be destroyed; and on account of the popular idea of their inexhaustibility it is difficult to arouse people's minds in some quarters to the gravity of the present menace. With a people whose imagination has been stirred for generations by the ponderous volume pouring over the cataract, the inexhaustibility of Niagara has been as firm a belief as their confidence in the limitless heat of the sun, and they are incredulous of the unwelcome fact that Niagara can be dried up. "You might as well think of baling out the sea as to think of drying up Niagara," said a gentleman advocating a water franchise before the New York legislature two winters ago.

But what is the fact to be set over against this tradition of the infinite resource of Niagara? It is that the volume of the river is limited. Observations by United States engineers, covering a period of forty years, show that the minimum discharge of Lake Erie is 165,340 cubic feet a second; the maximum, 242,000, and the average, 222,400 cubic feet per second.

Now, it stands to reason that the volume of the falls, as a whole, will be diminished exactly in proportion to the amount of water taken from the river above them. The relative effect of this diversion upon the two falls depends upon the point at which the water is taken. To understand this it should be borne in mind that there are two falls, separated by Goat Island. The international boundary line passes through the Canadian Fall at the former apex of the horseshoe, thus placing the American Fall, Goat Island, and half of the horseshoe, or so-called Canadian Fall, on our side of the line. So our sentimental or our real interest is not confined to the American Fall.

About three-fifths of a mile above the falls the stream is divided by the apex of Goat Island. The point of division is about 750 feet from the American shore and 3,750 feet from the Canadian shore. If the cross section of the river bed were horizontal, the gradient equal, and

the current parallel to the midstream line, Goat Island would divide the volume in the ratio of one to five, giving the American Fall one-sixth and the Canadian Fall five-sixths of the water. But the river bed is not horizontal. It dips toward the Canadian side, and at the cataract the sill or rock edge of the Horseshoe Fall is 10 feet lower than the sill of the American Fall. The force of gravity, therefore, also tends to aggrandize the Canadian Fall at the expense of the American. As a result of these conditions, it is estimated that the American Falls get only one-tenth of the volume of the river, or about 22,000 cubic feet a second, while the Horseshoe Fall gets about 200,000 cubic feet on the average.

Two other factors of the physical situation must be mentioned in order to have a complete understanding of the relative effect of diversion upon the falls.

The channel between Goat Island and the American shore is in the form of an inverted funnel. The small proportion of water which it receives enters through an opening about 750 feet wide and spreads out thinly over a crest line 1,060 feet long.

The other factor is this: From near the head of Goat Island to the Canadian shore there is a line of breakers at the beginning of a very rapid descent in the Canadian channel. It is obvious that any water taken out below the head of these breakers will affect only the Horseshoe Fall.

We must admit that the State of New York has not protected the falls as she should have guarded them. With a prodigality which has utterly ignored the property rights of the people in that which forms a part of their Commonwealth—wealth belonging to them in common—she has given away the immensely valuable water power of Niagara without exacting a cent of compensation for tax relief.

However, it is but justice to say that these grants were largely made at a time when the utilization of Niagara for power purposes was in a measure experimental, and that no grants for the use of water have been made by the legislature of the State of New York since 1894.

But this brings us to another phase of the subject. Of what avail is it for us to guard our half of the river if Canada will not similarly guard hers? It is here that we invoke the Federal authority to effect coordinate action on both sides of the international boundary by treaty with Great Britain.

Before appealing to our cousins across the boundary, however, it might give an earnest of good faith if our Federal Government would exercise on this side the power which it already has to prevent the diversion of the water.

The fee ownership of the water of Niagara River on our side of the boundary and of the land under water is in the people of the State of New York: but as an international boundary and a navigable stream, the Federal Government already has, and has exercised, the right of jurisdiction over it. The Niagara River, in law, is a navigable stream throughout its length. The upper river is practically navigable from Port Day—at the upper end of the State reservation—to Lake Erie. The water can not be lowered on one side without lowering it on the other, and it would seem to be within the sovereign power of the two National Governments to maintain its level.

Regarding the present water conditions at Niagara, the following report was submitted to me Wednesday, April 18, by Superintendent

Perry, of the Niagara Falls Reservation. The computations were made by Supt. E. H. Perry and James Wilson, who is superintendent of the Niagara Falls Victoria Park. Mr. Wilson is a competent civil engineer, a close observer of conditions, and has been superintendent of that park since it was acquired by the Canadian authorities, about twenty years ago.

The width of the crest of the American Fall is 1,060 feet; the average depth of the American Fall at the crest is now 1.22 feet.

Mr. BEDE. Is that on the American side?

Mr. DOW. Yes, sir.

Mr. BEDE. We have had testimony here that it is 4 feet.

The CHAIRMAN. I think that the consensus of the testimony is that it is nearly 4 feet.

Mr. SPARKMAN. How deep did you say that it was?

Mr. DOW. 1.22 feet. That information was telephoned to me.

The CHAIRMAN. Was that measured—was it an actual measurement?

Mr. DOW. No, sir.

Mr. RANDELL. Was that taken at a time when the east wind was prevailing?

Mr. DOW. No, sir; the conditions were normal. I took particular pains to be certain of that.

Mr. MACFARLAND. These gentlemen are State employees.

Mr. DOW. One of them is a State employee and one is an employee of the Canadian government.

Mr. BEDE. What volume do you claim goes over?

Mr. DOW. The report explains it.

Mr. BEDE. There is some difference on that point.

Mr. LAWRENCE. Did you say who made these figures?

Mr. DOW. They were made by Supt. E. H. Perry, and Mr. James Wilson, who is superintendent of the Niagara Falls Victoria Park, and has been for twenty years, and who is a civil engineer; and these statements are, to the best of their knowledge and judgment, correct.

The width of the Horseshoe Fall in 1890 was 3,010 feet. Owing to the recession and filling on the Canadian side by power companies the crest line is reduced to approximately 2,500 feet. That is the effect of concentrating the water, narrowing it up, which makes it appear as full as ever. This filling was done in 1904 and 1905.

The average depth of the water at the crest in 1890, as given by the United States engineers, was 8.8 feet; the average depth now at crest, 7.9 feet; the depth of the water at the deepest place, about 12 feet. We determine the depth by the amount of water, the velocity, and the width. By the United States engineers' estimate in 1890 the flow of water passing Buffalo was 222,400 cubic feet per second. We deduct the Chicago Drainage Canal, 5,000 cubic feet; then deduct water by the Niagara Falls Power Company and Hydraulic Power Company, making 11,700 feet. The amount of flow of the two falls is 205,700 cubic feet per second.

That was what you asked about, I believe, Mr. Bede.

Assume that 10 per cent goes over the American Falls. We take 20,700 and deduct that from the total amount of water passing over the falls, leaving 185,000 cubic feet per second flowing over the Horseshoe Fall. From that we deduct the water taken by the Ontario Power Company and the Canadian Niagara Power Company,

which amounts to 3,200 cubic feet per second, leaving 181,800 cubic feet per second as the amount of water passing over the Horseshoe Fall at the present time, as near as we could compute. The average flow at the crest of the Horseshoe Fall is estimated at about 10 feet per second. Ten feet per second multiplied by 2,300 and dividing 181,800 by the product gives us 7.9 feet as the average depth of the Horseshoe Fall at the present time. We use the figures 2,300 instead of 2,500, as there is little water going over 200 feet of the crest on the American side of the Horseshoe Fall. During 1905 we had extremely high water, and the average so far this year is about the same as last.

The CHAIRMAN. Those last few figures are striking. I think that the nature of the Horseshoe Fall is owing to the contour of the bottom and it not being straight across from end to end. Do you understand that measurement to be correct—3,000 feet as the total length?

Mr. Dow. It was 3,010 feet, and now it is 2,500 feet.

Mr. DAVIDSON. How was that narrowed up?

Mr. Dow. By diversion and recession. As the Table Rock broke a few years ago and the Horseshoe Fall receded it narrowed it up naturally somewhat at the shore line, and since that the power companies have filled in on the Canadian side.

Mr. ALEXANDER. Where does your measurement begin on the Goat Island side of the Horseshoe Fall?

Mr. Dow. On the Goat Island side? What do you refer to?

Mr. ALEXANDER. Where does your measurement begin on the Goat Island side of the Horseshoe Fall to get that 2,500 feet?

Mr. Dow. I suppose it begins at the crest of the fall as it strikes against Goat Island.

Mr. ALEXANDER. Would you measure back to the site of the old tower?

Mr. Dow. There is about 200 feet where there is little water passing over; at the point of the Terrapin Rock, at the old tower.

Mr. ALEXANDER. Would you measure back from that?

Mr. Dow. Yes, sir.

Mr. DAVIDSON. You omitted that 200 feet in the computation of the average depth?

Mr. Dow. Yes, sir.

Mr. ALEXANDER. You omitted that in the computation of 7.9 feet depth?

Mr. Dow. Yes. Those measurements are made by men who are very familiar with it, and not by me. I called up Mr. Perry over the telephone on Tuesday and asked him for these figures, and I got them just before I left home.

The CHAIRMAN. They were transmitted to you by telephone?

Mr. Dow. Yes, sir.

The CHAIRMAN. Would it not be well for you to have those figures verified?

Mr. Dow. I have a duplicate of these figures made by Mr. James Wilson in his own handwriting.

The CHAIRMAN. You have?

Mr. Dow. Yes, sir; handed to me last night. I think it was his handwriting.

Mr. LAWRENCE. You are familiar with the falls yourself, are you?

Mr. Dow. Yes, sir.

Mr. LAWRENCE. Is it possible for you to notice any difference in the flow of the water over the American and Horseshoe Falls?

Mr. Dow. There is so much variance in the flow of the water that it is hard to tell. I think those people who see no diminution in it are quite honest in their opinion.

The CHAIRMAN. Do you yourself see any diminution in it?

Mr. Dow. No, sir; I am there once a month, possibly, for a day. But there is this about it. The Niagara Falls electric power development was started in 1897. The development has been gradual. I think in 1897 or 1898 the Niagara Falls Power Company took about 2,000 cubic feet. They now take 4,000 cubic feet. The development is so gradual that people who are about the falls continually would hardly see it. The Niagara Falls Power Company development commenced, say, in 1895. It was but a few hundred feet up to 1897, when it became something like 2,000 feet. It has been growing at the rate of a thousand feet, say, a year, until it is now about 8,000 feet. That comes so gradually, and the water is drawn from the entire breadth of the river and not from the American side, that it would hardly be apparent with the present amount. On the Canadian side, as these gentlemen stated, they are now diverting 3,200 feet. Their charter rights give them 32,000 feet. They are only diverting one-tenth of what they are entitled to divert. But the concentration of the water through the narrowing of the crest and the stream would of course mislead anyone.

Mr. LAWRENCE. You are inclined to think, then, that the scenic beauty of the falls has not been marred to any appreciable extent by the water now being diverted, and whatever marring of the scenic beauty there is has come from the structures which it was necessary to erect there?

Mr. Dow. The scenic beauty has been marred exactly to the extent to which there is diversion. It is purely a matter of degree. The diversion on the broad river is about 12,000 feet.

Mr. LAWRENCE. Did I not understand you to say that you could not observe any diminution?

Mr. Dow. I could not define it by the eye.

Mr. LAWRENCE. How could you detect it?

Mr. Dow. This report would show the difference.

Mr. LAWRENCE. As a scenic spectacle, what has been the effect?

Mr. Dow. Very little.

Mr. LAWRENCE. So that if there has been any marring of the scenic effect, it has been, as Mr. McFarland says, by the erection of structures.

Mr. BEDE. You can not detect it by the sound, either, can you?

Mr. Dow. No, sir; it is the fear of the future development that brings us here. It is what may be done that we are looking after, this tremendous diversion.

Mr. BEDE. I think we had testimony by Mr. Cooper that he had in contemplation excavating the river above Goat Island, so as to give more water flowing on the American side. Would that mar the beauty of the falls?

Mr. Dow. My impression is that that blasting has been done for the benefit of the two power companies that are above there, in

order to increase the flow in front of their intakes, and particularly for ice conditions. The ice conditions are bad. That has not been done by the Government.

Mr. BEDE. But our Government has the right to have the flow of Niagara on our side, and would the diversion help to preserve the falls?

Mr. Dow. I should think so.

The CHAIRMAN. This blasting that has been done has been a little way above the intakes of the Niagara Falls Power Company and of another company, and this blasting spoken of by Mr. Cooper is well above that point.

Mr. ELLIS. Several miles above.

Mr. Dow. Yes, sir.

Mr. ELLIS. If that did not mar the scenic beauty, what would be the objection to it?

Mr. Dow. I do not think anybody could say as to that, unless he knows the bed of the river.

Mr. BURGESS. Have you any estimate as to the extent to which the water can be taken from the river above without marring the scenic beauty?

Mr. Dow. It is impossible to say that. We have felt that these companies that had these rights were going to exercise them, and we want it absolutely stopped—further grants. There are certain companies that have legal rights and have made large investments, and they acted in good faith, and, while I am not a lawyer, I suppose their vested rights will stand. I do not know anything about that, however.

Mr. LAWRENCE. Would you have such companies prevented from diverting any amount of water beyond that which they are now diverting?

Mr. Dow. I understand this bill proposes to hold up further diversion for three years.

Mr. LAWRENCE. That is exactly it, and that proposition you would favor?

Mr. Dow. I should think that would be a good thing to do.

Mr. ALEXANDER. One other question. You spoke of their filling in on the Canadian shore between Table Rock and the present flow of water. Did the water ever go over that part of the Canada Falls between Table Rock and where the water now flows?

Mr. Dow. Yes, sir; over all that part, as I understand it.

Mr. ALEXANDER. Did you ever see it go over there?

Mr. Dow. Yes, sir; when I was a boy.

Mr. ALEXANDER. How long ago? [Laughter.]

Mr. BURGESS. I object to that.

Mr. Dow. More than sixteen years. I don't know. These gentlemen can tell when the Table Rock fell. Do you know, Mr. Porter?

Mr. PORTER. I think it was about 1840.

A WITNESS. Oh, no; I saw it.

Mr. PORTER. Charles Dickens speaks of it.

Mr. Dow. Charles Dickens was in this country in 1848, was he not? He made several visits, one visit was in 1848. I remember going there when I was a boy and being out on it.

Mr. McFARLAND. I have it here, Mr. Chairman. A part of the Table Rock fell in 1850 and most of the remainder in 1867.

**STATEMENT OF MR. CLINTON ROGER WOODRUFF, SECRETARY
OF THE AMERICAN CIVIC ASSOCIATION.**

Mr. WOODRUFF. The question asked by some member of the committee in regard to the observation of those who have seen the falls with considerable frequency, as to whether there had been any diminution noticed, reminds me of Holmes's poem "The One-Horse Shay." I believe the deterioration of that historic vehicle was not noticed, but it went all of a sudden; and I doubt whether any of us are sufficiently close observers to tell whether the falls deteriorate from time to time; but I gather from the testimony on behalf of the power companies by the engineers that it is pretty sure that if there is not a stop put to the taking of water for the creation of power the falls will be diminished if not entirely destroyed. I do not think there has been any dissent as to that general proposition. There may have been, but I think there is considerable doubt as to when that point may be reached. There is great diversity of opinion as to the engineer and his observations, and some as to the extent of investigation.

But there is one point, Mr. Chairman and gentlemen, that I want to dwell upon as emphasizing a line of thought that was suggested by former Attorney-General Griggs, and that is the paramount rights of the public in this great natural wonder. We are living in a day and generation when the rights of the people as such are being considered as never before. All over the country we hear and see the agitation in behalf of the rights of the people manifesting itself in the municipal-ownership movement and in the right of the people to be heard in the arbitration of the differences arising over the mining question, and in all these things the paramount rights of the public are and must be considered above all things.

Here we have the most tremendous of all spectacles. There is no doubt in the mind of anyone who has been before this committee as to the grandeur of this wonder; that it is unparalleled not only in our own country, but in the world, and there is no difference of opinion whatever concerning the fact that it is a national heritage. Now, I do believe that before there should be anything done or permitted to be done on the part of any further companies or existing companies we should stop and consider very carefully what the rights of the people are in this great wonder.

I think that the bill which your chairman has so carefully drawn is based upon sound public policy, because it puts a stop to further diversion of the water, and therefore you stop all further spoliation of the falls. In the second place, it places the granting of further permits in the hands of an executive officer who has skilled scientific investigators and advisers at his hand; and that is the point to which Mr. Griggs referred—that this matter should be settled by executive determination and not by legislation. You gentlemen, as the custodians of the rights of the American people, seeing that further depredation of the falls is going to result sooner or later in their destruction, certainly as a scenic wonder and perhaps in other respects, although those aspects are not before us in connection with this bill, should see to it that there should be no further depredation. Now, here we have this situation. I doubt if there has been any measure of a public character that has called forth more general comment from

every part of this country. It has been my fortune, as the secretary of the American Civic Association, to be in receipt of the various communications that have been prepared on this subject.

There is not a single State in this country that is not represented in the demand for the preservation of the falls. From far-off San Francisco, before she was struck by this terrible disaster, from Seattle and Tacoma, on the northern coast, from the Middle West, from the South, and from the East, and from every part of the country without exception, comes the words, "Save Niagara." The protest comes not only from the women, but from the men; not only from the professional men, but from the business men. You have heard what the Chamber of Commerce of New York has to say on this subject. Other business bodies, like the Chamber of Commerce of New Orleans and the Chamber of Commerce of Los Angeles, also send their protest. I cite those simply for the localities they represent, although they are typical and by no means exceptional. We find this general demand, and so far as I know, there has been no voice of protest raised against the saving of Niagara except by those who are financially interested in the use of this water, and I think that is a matter that should be borne in mind; not only that we find that the demand grows, but that the demand comes not only from those who know Niagara and love it, but from those who have never seen it, but hope that some time they may be privileged to, or that their children may.

From the far inland towns it has been a surprising thing to find how deep seated is this demand and how universal that Niagara be saved, and I ask you in the name of these people who have manifested this interest by writing to you, by writing to the President, by writing to newspapers, and by taking corporate action in the different organizations that they are connected with, to give to that sentiment which is so strong and growing so rapidly the recognition which it deserves. You have evidence before you that will satisfy you, I am sure, when you come to discuss the engineering features. It is, as I said in the opening, generally conceded that there is a point beyond which you can not go in safety, whether there is evidence to determine that exactly or not; but the Burton bill places the determination of that in the hands of competent Government officials, and it is wisely drawn, because it stops diversion at the present point and makes further depredation a matter for the determination of one who can accurately inform himself in regard to it, and I sincerely hope that the bill will be reported by you, and as committed, and that there will be behind it the force of a unanimous indorsement, because this is essentially a movement of the people. I speak without fear of successful contradiction when I say that there has not been lodged with any member of this committee a protest of any public-spirited body or any group of men, except those who have financial interests, against the passage of this bill, and it seems to me that that fact ought to have tremendous weight in securing not only affirmative action, which I anticipate, but such unanimous action that there will be no question for the future or the present as to the saving of Niagara Falls.

MR. ALEXANDER. What is the association of which you are secretary?

MR. WODDRUFF. The American Civic Association.

Mr. ALEXANDER. You have told us of the great number of organizations in different cities, from far-off Los Angeles, and so forth, which have reported through correspondence to you. What have your duties been as secretary—to write these people and get expressions from them?

Mr. WOODRUFF. I shall be very glad to answer that. At the Cleveland meeting of the American Civic Association a series of resolutions was introduced calling upon the association to take steps for the preservation of Niagara. Those resolutions were telegraphed to the President of the United States and to the governor-general of Canada, and the President of the United States at once referred the resolutions to his Attorney-General, who prepared an opinion in regard to the feasibility of the plan suggested. That action brought out such a general call for further organized effort that we transmitted it to all our members, spread all over the country and representing all the various States, and then we secured the cooperation of practically all of the leading magazines represented in the American Periodical Publishers' Association, who gave us the full-page advertisement which you see here without a single cent of compensation. All the work that has been done thus far has been done freely and without any return other than that which comes from doing a public duty.

Mr. BEDE. I would like to ask you one question. I am quite in sympathy with the preservation of the falls. Chicago has a drainage district of two or three million people, and the population is rapidly increasing. Certain rights have been granted at Niagara already which we can not change. Now, if it came to a contest between the health of Chicago and the scenic beauty of Niagara Falls, what would you say in that case?

Mr. WOODRUFF. I would like to say this, that if we were face to face with a disaster like that, or were up against the margin of existence, then we would be justified in using the power of Niagara or anything else that we had or could get; but we have not reached the point where the falls are in any such jeopardy as that.

There is another point. It has not been testified that there has been any cheapening of the power to the consumers. It is merely a commercial venture.

Mr. BEDE. There was testimony as to the cheapening of the power.

Mr. JONES. There has been a project at Buffalo with a reduction from \$65 to \$56.

Mr. WOODRUFF. Would not that reduction be made anyway whether the falls were used or not? For instance, in Philadelphia the price of electricity has been reduced from \$110 to \$90.

Mr. BEDE. That was a result of the recent election.

Mr. WOODRUFF. It was the result of the people speaking.

Mr. BEDE. They testified that they could furnish power for \$20 a year, I believe.

Mr. WOODRUFF. I do not know personally, but Mr. McFarland has told me that there has been no substantial reduction to the consumer as the result of the utilization of the Niagara power. Competition may reduce the price.

Mr. LAWRENCE. You speak of the president of the Chamber of Commerce of Buffalo. He has said that their only hope of getting cheapening of power was through the importation of power from Canada.

Mr. WOODRUFF. I have heard that argument along other lines, but I never have been convinced that it was a sound policy to follow.

Mr. DAVIDSON. When you refer to the cheapening of the product to the consumer, you mean the article produced?

Mr. WOODRUFF. Street-car fares or lighting in your house or my house.

Mr. DAVIDSON. But the products which they manufacture throughout the country are not any cheaper?

Mr. WOODRUFF. To the individual consumer?

Mr. DAVIDSON. Yes.

Mr. WOODRUFF. I do not know, nor have I heard any statement as to the cheapening of power to the large consumers or manufacturers, but I mean a cheapening to the man who uses the street cars or the electric lights in his house or for personal purposes.

Mr. McFARLAND. I would like to say—and Colonel Alexander can correct me if I am wrong—that the city of Buffalo pays as high as \$75 a year for 20,000-candlepower arc lights for its streets.

Mr. WOODRUFF. The city of Harrisburg pays \$46.50 for the same, from coal; and I pay 5 cents for car fares in Buffalo, as you gentlemen do, while here you get six tickets for 25 cents, one being by the power derived from Niagara, which is supposed to be cheap, and the other derived from coal.

Mr. ALEXANDER. In Buffalo we paid \$75 an arc light, but recently they have reduced it to \$56.

Mr. DAVIDSON. They have made a proposition to furnish them for \$56.

STATEMENT OF MR. CHARLES L. HUNTLEY, VICE-PRESIDENT OF THE CATARACT POWER AND CONDUIT COMPANY.

Mr. HUNTLEY. The price is \$56, and that has been accepted by the common council. I speak authoritatively, and not by hearsay, because I am in charge of the situation absolutely, having made the contract myself.

Mr. DAVIDSON. When was that contract made? I want to get your testimony.

Mr. HUNTLEY. It was proposed last Thursday.

Mr. DAVIDSON. I understood that the proposition had been made.

Mr. HUNTLEY. The proposition has been accepted by both branches of the common council. Both bodies have accepted the proposition for the reduction from \$75 to \$56 a year beginning March 1, 1907, and running for five years, with an abatement on the rate from June 1, 1906, to the expiration of the contract, and the kilowatt price has been reduced from 12 to 9 cents maximum.

The CHAIRMAN. To the private consumer?

Mr. HUNTLEY. Yes, sir.

Mr. LAWRENCE. I understood the president of the Chamber of Commerce of Buffalo to say that their only hope of what they call cheap power was through the competition that would come through permitting power to be imported from Canada, and I have had sent me resolutions from the city council and the chamber of commerce which protested against that importation. Now, has this reduction you speak of on city lighting come about through that competition?

Mr. HUNTLEY. No, sir; it is for the reason that the Government has a right to construct the line from Lake Erie. We are utilizing a portion of the power that is being made at Niagara Falls.

The CHAIRMAN. Do you represent the same company as General Griggs?

Mr. HUNTLEY. No, sir.

The CHAIRMAN. Which is your company?

Mr. HUNTLEY. The Niagara Falls Power Company. It is both sides.

The CHAIRMAN. What is the name of the company on the Canadian side?

Mr. HUNTLEY. The Canadian Niagara Falls Power Company.

Mr. BEDE. Some of this power will, as a matter of fact, come over from Canada?

Mr. HUNTLEY. Yes, sir; we expect to deliver it by the 1st of August.

Mr. DAVIDSON. Then the president of the chamber of commerce was practically correct when he said that it was by reason of this competition you were making this reduction?

Mr. HUNTLEY. Yes, sir.

Mr. DAVIDSON. And were it not for your ability to bring in power from Canada, the reduction would not have been made?

Mr. HUNTLEY. I would not say that. We would not have done it anyway.

Mr. DAVIDSON. Then Buffalo would get the benefit of cheap power even though this bill was not presented?

Mr. HUNTLEY. Yes, sir.

Mr. McFARLAND. How cheap that power is you can understand when I tell you that that lighting in Harrisburg, Pa., is done for \$47.50. I would recommend that the gentleman move from Buffalo to Harrisburg.

Mr. HUNTLEY. How much power do you use?

Mr. McFARLAND. I have two or three hundred horsepower.

Mr. HUNTLEY. I will sell you all that you want in the city of Buffalo at a cent and a half a kilowatt.

Mr. McFARLAND. You had better publish that.

Mr. HUNTLEY. It is our published rate.

The CHAIRMAN. What is your rate for electric power?

Mr. HUNTLEY. The small users of power pay from 6 to 4 cents up to 10 horsepower. There is a maximum rate of 25 cents. We begin at 1 cent and go to 9 cents per kilowatt hour.

The CHAIRMAN. The electric light is measured by kilowatts?

Mr. HUNTLEY. Yes. The maximum price is 9 cents, and that goes to 3 cents, according to consumption.

The CHAIRMAN. What do you mean by that?

Mr. HUNTLEY. Those who use the most get the lowest rate.

The CHAIRMAN. Is not that unusual?

Mr. HUNTLEY. No, sir; that is very usual. In your own city—Cleveland—it is the same as in Buffalo. The largest consumers get the lowest rate.

Mr. DAVIDSON. That is light or power?

Mr. HUNTLEY. Light and power; the largest consumers of power get the lower rate.

Mr. DAVIDSON. It does not apply to residences, does it?

Mr. HUNTLEY. Yes, sir.

Mr. DAVIDSON. Nine cents is the maximum rate?

Mr. HUNTLEY. Nine cents is the maximum rate, and that goes to 4 cents if they use six hours out of twenty-four.

Mr. ELLIS. Is there an economic reason for that?

Mr. HUNTLEY. Yes, sir.

Mr. ELLIS. It does not rest on the principle that to him who hath shall be given?

Mr. HUNTLEY. No, sir; not at all.

Mr. ELLIS. Can you furnish it more economically?

Mr. HUNTLEY. Yes, sir; the lights are all arranged for the small users. I will give you an illustration: We burn natural gas for light and heat in Buffalo to quite an extent. My neighbor uses natural gas for his entire outfit, and burns no coal. There are the same meters, and the same service goes by his residence as goes by mine. I use it for cooking purposes. He will use 150,000 cubic feet a month, and I will use 30. He is therefore entitled to a less rate, or I should pay more.

In regard to the electric light, the transformer is there, and the investment is there, and if he uses a light ten or eight hours and has a high load, he is justly entitled to a lower rate. And at certain hours of the twenty-four it is always cheapest to furnish current. All electric light companies can furnish light cheaper in the daytime than in the night; consequently we sell a day load cheaper than a night load.

The CHAIRMAN. This shows how difficult it is for us to rely on any figures giving the rate for power or lighting, because of the shifting scale, according to the quantity consumed, which is very different in different cases.

Mr. McFARLAND. I would say that we would be very glad to put in an economic argument, but we did not come here this morning for that. We have been trying to present this subject from the scenic side, and I would like to introduce next Mr. Hall.

STATEMENT OF MR. EDWARD HAGERMAN HALL, SECRETARY OF AMERICAN SCENIC ASSOCIATION.

Mr. HALL. Mr. Chairman and gentlemen, the society which I represent by the authority of the trustees has a quasi-official standing in the State of New York, and although it is a national organization, it has a special charter from the State. It is subject to make an annual report to the legislature, and it is the custodian for the State of one and probably at this time of three State reservations. Mr. Andrew H. Green, who was the father of Greater New York, and who was our late president, was the father, so to speak, of the legislation which created the Waterways Commission, whose recommendations you are considering.

The CHAIRMAN. That is a different organization from this present one. This Waterways Commission that has been reporting here is one created by an act recommended by this committee, passed in June, 1902; and then there was another, called the Deep Waterways Commission. Is not that the one to which you refer?

Mr. HALL. Possibly I am mistaken, but I remember that Mr. Green proposed this idea through Senator Platt, and I think it

passed one House and failed in the other as an independent bill, and then it was embodied as a part of the river and harbor bill. However, I do not make any point on that. Indeed, what I can say this morning would not begin to cover the subject, but is rather a token or symbol of what should be said. It seems to me that this question orders itself about like this in my mind. There are three propositions. One is, are the Falls of Niagara in danger? And, if they are, has Congress jurisdiction to avert that danger? And, if Congress has, is Congress justified by the prevailing intelligent sentiment of the people of the country, which must be the criterion for the proper legislation under a democratic form of government?

Now, under that first subject, the danger to the falls, it seems to me that the statement of the Waterways Commission in section 26 of their report is well borne out. There is a certain mean volume to the falls there. You can compute how much is to be diverted, and you know how much is left. That is a physical proposition. The next question is, is it appreciable. Now, so much has been said on that that I would like to say just one word. Appreciable by what sense? You generally mean the sense of sight. If you had a pail of water 18 inches deep—and I use 18 inches because cakes of ice 18 inches thick have been known to lodge going over the American Falls—and you had that pail filled to the top, and you lowered the water 1 inch, you would appreciate it, because you would have all the data in your field of vision. You would have the top of the pail and the space between the top of the pail and the surface of the water, and you would know that 1 inch was gone. If you take an inch off from Niagara Falls you may not appreciate it at first for the reason that the criteria are spread over so vast an area that you can not get them all into your field of vision. The crest of the American Falls is over 1,000 feet long. But if you take off an inch, that inch is gone just the same, and if you take off another inch, that is gone just the same. If you are out at sea, the tide rises, say, 10 feet, but you do not notice that because you are away from land and you have not the data for comparison and you do not appreciate it.

Now, if you extract water from the Niagara River, of course it is gone, and it may not be appreciable by the person who goes there very rarely, or only once, but it is gone, and if you take out more, that is gone, and by and by you can get to the bottom of it. The thing to do is to stop it now before you get to the bottom. The man who falls off a roof does not realize his full grief until he strikes bottom. But when he strikes bottom he realizes that if he had not fallen the first foot, he would not have struck bottom. One of the members of the committee asked whether, if more water was drawn to the American side, this diversion would affect the volume of the falls. The answer occurred to me that if the water were drawn to the American side to be diverted, of course it would not benefit the falls at all, if it were simply to be drawn over to be taken out.

As to the legal questions, I will not say anything.

Now, as to being justified by public sentiment, the State commission on Niagara was created some time ago in response to the most extraordinary expression of sentiment that has ever been made. It was on a petition which has been reported by the commission for 1903, I think, a petition addressed to the governor of New York and the Governor-General of Canada, which was signed by a phenomenal

array of names of the greatest jurists and statesmen and poets and writers in all walks of life that I think have ever signed a public petition. They represented, if any high and intelligent sentiment could, the best sentiment of this country, and I should say that it also embraced similar representatives of Canada and Great Britain. That sentiment has grown, and we believe that it is so universal that you are justified in respecting it. That sentiment is based on three things—on the scenic grandeur of Niagara Falls, on its historic interest, and on its geological or scientific interest. I will not say anything about its scenic grandeur. Emerson says there are some things you can not describe. One of the reasons why it is famous all over the world is this: It was first seen by Father Hennepin, in 1678, who was a companion of La Salle in his effort to reach the Mississippi. Father Hennepin gave the first description of Niagara Falls. His description went through thirty-five editions in the different languages of the Old World, and it spread the fame of Niagara Falls abroad, and it became known as the first great scenic beauty of America, and so the fame has spread; and it has continued until, as Mr. Dow has said, it has reached even the Orient, and Mr. Dow could tell you that when the Chinese viceroy was there he clapped his hands together and just jumped up and down in uncontrollable ecstasy over the wonderful beauty of Niagara Falls. I think that is a striking instance of the effect of these falls on the beholder.

Niagara Falls has a value from the standpoint of geological science and should be preserved for that reason. You know, of course, that it was born about 7 miles to the northward, on the retreat of the glacier, and it has been retreating since then. Now, if you can calculate the time that it has taken to recede you can get approximately at the age of man, because the earliest relics of man are found in glacial deposits. Certain computations have been made, but they vary in this, that the computations as to the recession of the falls have been made at rare intervals and only recently. There is also a dearth of collateral geological information; but that information is accumulating, and the longer you can keep Niagara Falls the more full and perfect these data will become.

Niagara Falls should be preserved for its scenic beauty and for its value to science and for its historical interest.

Mr. ALEXANDER. We had some evidence that if a less amount of water went over the falls it would preserve them; that the great amount that goes over the Horseshoe Fall is cutting back the cliff at the rate of about 5 feet a year.

Mr. HALL. You would draw away the water and preserve the cliff, you mean, not the falls. [Laughter and applause.]

Mr. ALEXANDER. Your geological theory as to the preservation goes to the cliff as well as to the falls.

Mr. HALL. No, sir; we preserve the falls and we are perfectly willing to let the falls recede at its present rate, which has been estimated at about 3 feet a year, and we think that none of us or our respective children or grandchildren will be deprived of the great sight there.

As to this bill, our society thinks it is a good bill. The only suggestion practically that we have to make is as to section 6, where it says that the provisions of this act shall remain in force for three

years from and after date of its passage. We think that that period could be extended to ten years without doing any injustice.

If the third section is adopted, as to the transmission of power from Canada to the United States, prohibiting that transmission, you will protect Niagara Falls very largely, because, as I understand, the market for the power generated on the Canada side is expected to be on this side, and if you will prevent the exportation of power to this country you will deprive the Canadians of their market and control their output.

There is another suggestion that I want to make, with deference to the committee. Perhaps you have called some military experts before you, but if you have not I would suggest that you do so when you are considering the navigability of the stream and the protection of the frontier. I remember the famous "Battle of the Casks," in the Revolutionary war, when casks of gunpowder were floated down the Schuylkill. Now, it seems to me that so long as there is water there it possesses a military value in some ways that I can not think of offhand.

As to the diversion at Chicago, I think I agree with the other speakers that public health is paramount to æsthetic gratification, but it should be borne in mind that science is now discussing methods of disposing of sewage other than that of dumping it into your neighbor's waters, and it is possible that the disposition of it may be made profitable.

ADDITIONAL STATEMENT OF MR. DOW.

Mr. Dow. Mr. Chairman, I appear now as representing the Chamber of Commerce of the State of New York. I have here the recommendation of the committee on internal trade and improvements to the Chamber of Commerce of the State of New York, which committee consists of the following gentlemen:

A. Barton Hepburn, Cleveland H. Dodge, George Gray Ward, Thomas P. Fowler, Frederick D. Underwood, Charles A. Schieren, and Perry P. Williams.

This recommendation reads as follows:

In the phenomena of nature the Falls of Niagara easily take first rank in beauty, grandeur, and magnificence. They are the Mecca of sight-seers and pleasure seekers among our own people and easily command the first interest of travelers from abroad. Many years ago the State of New York made a reservation of all that portion of the falls lying within the State, and sought thereby to create a perpetual park for the recreation and enjoyment of the public. The huge volume of water which constitutes this cataract possesses enormous power, which appeals in no small degree to the commercial interests and possesses enormous value. Many enterprises exist and many more are projected which seek their motive power by taking the water from the Niagara River above the falls, which again joins the river through some raceway below the falls. This necessarily reduces the flow of water over the precipice and impairs the beauty and loveliness of this great boon which nature has placed partly within our borders.

The President discussed this subject in his message. He said that "nothing should be allowed to interfere with the preservation of Niagara Falls in all their beauty and majesty. If the State [of New York] can not see to this, then it is earnestly to be wished that she should be willing to turn it over to the National Government."

The governor of the State discussed the matter at length in his annual message, setting forth the menace to the falls in the rights already conveyed to existing corporations, and suggesting a method of limiting the danger and a

means for the protection and preservation of their grandeur and beauty: Therefore, be it

Resolved, That the Chamber of Commerce of the State of New York cordially approves the position taken and the sentiments expressed by President Roosevelt and Governor Higgins with reference to the desirability of protecting and preserving Niagara Falls in all their grandeur and beauty.

Resolved, That the chamber protests against the enactment of any legislation calculated to imperil this great scenic phenomena. Commercial interests should go elsewhere for mechanical power, and this great source of enjoyment and pleasure should be preserved for this and succeeding generations. And be it further

Resolved, That the president of the chamber be authorized to appoint a special committee of three to take such further action as may be deemed necessary in the premises.

There has been no meeting of the chamber since this bill has been before you. The chamber of commerce, as you probably know, was organized in 1767, I believe, and is the most powerful commercial body in the world, and the most influential.

Mr. McFARLAND. Mr. Chairman, we will close our case—the art side of it—by presenting to you Mr. Charles R. Lamb. But before Mr. Lamb addresses you I want to tell you a story of a man who wanted to hire a coachman, one time. He asked all the candidates who appeared for the position how close they could drive to the edge of a precipice. One could drive within a foot of it without going over it and another within an inch, and there was another fellow who said he thought that he could skate around there with one wheel in the air over the precipice. Finally another fellow said that he would hug the inside of the road as close as he could; and that was the man that he hired. And I submit that to your consideration on the question of the advisability of not running any risks in regard to Niagara Falls.

STATEMENT OF MR. CHARLES ROLLISON LAMB, PRESIDENT OF THE MUNICIPAL ART SOCIETY, OF NEW YORK.

Mr. LAMB. I am not here to argue either pro or con for the electrical questions, as to what can be secured from Niagara as to horsepower or as to kilowatts or any of the technical terms of the other gentlemen; although, incidentally, it seems to me that if you would prohibit them from taking water from the river above the falls, our American ingenuity would find some way of utilizing the power of the current below by turbines, which would take the side rush of the water, or in some way use that power. I am speaking to you of what the American people think of it.

The Municipal Art Society is only one of over 800 organizations, increasing each year, which represents certain definite ideas of the community as to the beautification of their surroundings. I am speaking for the members of the Municipal Art Society of New York. Part of our work is to help the city of New York put up a monument to the late Andrew H. Green, because he helped not only to make our great Central Park at one end of the State, but to make the Niagara reservation at the other end of the State, and we honor and venerate Green for both sides of his work.

Beauty is a quality that commercialism does not recognize in many ways, and yet beauty has a definite financial aspect. You go abroad and you visit your Paris and your London and you go down and see

Rome and Florence, and you are expending your good money to see what? To see things built by people who believed in making cities beautiful. And Paris coins money to the millions of dollars a year because it is considered worth while.

Washington has a record of which you are all proud. You gentlemen, probably, on other committees, carry forward the good work of making Washington more and more beautiful; and yet before the first President and L'Enfant laid out Washington Niagara was carrying out its purpose of impressing on the minds of the American people this love of beauty. And it is that love of beauty, it is that power, which you are calling upon for every appropriation made either here by the great Central Government or in your cities and home towns and your little village improvement societies. You can not get something from nothing; neither can you have a public opinion or belief in beauty if it is not educated. And Niagara is one of the greatest natural educators in the cause of public beauty that we as a nation possess.

I was dining with a prominent manufacturer in one of the midland counties in England, and I was saying that my home was on the crags of the Palisades above the Hudson, and that I went into the city every day and back again to my home in the evening, and he understood that. Then he turned to me most naïvely and said: "I suppose, Mr. Lamb, you can hear the falls;" and I pulled myself together and tried not to smile, and I said: "Oh, no; you have to go up the river a little farther," and let him down as easy as I could. And each time that I think of that incident I think that the fall of Niagara and the sound from it has been heard 6,000 miles—3,000 miles to England and 3,000 miles across our continent—and the reverberation of Niagara is in the ears of every American citizen. And it is for you gentlemen here, as representing us all, to remember that fact and listen.

(At 1 o'clock p. m. the committee adjourned.)

HOUSE COMMITTEE ON RIVERS AND HARBORS,
PROSPECT HOUSE, NIAGARA FALLS, N. Y.,
April 27, 1906.

Present: Hon. T. E. Burton, chairman; Hon. D. S. Alexander; James H. Cassidy, Esq.

The chairman announced that interested parties would be heard, and Mr. Sanford T. Church, of Albion, district attorney of Orleans County, spoke as follows:

**STATEMENT OF SANFORD T. CHURCH, ESQ., DISTRICT ATTORNEY
OF ORLEANS COUNTY, N. Y.**

MR. CHURCH. I am from Albion, Orleans County, N. Y., and represent Albion and Holley, in the same county; also Brockport and Middleport. Of those four places, three of them now are lighted by electricity furnished by the Albion Power Company, a local corporation, which has already constructed several transmission lines, in all 25 or 26 miles, with the idea of ultimately getting its power from Niagara Falls through the Electrical Development Company, or its American company, the Niagara Falls Electrical Transmission Company.

Holley is on the way between Albion and Brockport, and while these places are all villages, yet we consider them something more than mere spots on the map, Albion having a population of something over 5,000, Holley about 2,000, Brockport nearly 5,000, and Middleport somewhere in the neighborhood of 1,500 to 2,000, I think. In the village of Holley the Albion Power Company has a franchise for the distribution of power, but the village itself has a municipal lighting plant, so the power company does not light it, although they are looking forward there to making a contract with the power company as soon as Niagara Falls power is available.

The county of Orleans is largely a fruit county, and they have been having their eye on this electrical sun, as it were, when this bill hove in sight and bid fair to eclipse what to them was to be the solution of a problem, viz, the problem of keeping their fruit. The Albion Power Company has to-day five or six customers in the line of cold storage, they furnishing the power for the development of the artificial plants which generate cold, and thus keep the fruit. In that way the farmers of our locality are deeply interested in having electrical power distributed throughout our section, and while, of course, we feel that the beauty of the Falls should be preserved, yet at the same time we do feel that as long as the Canadian government has authorized the development of electrical power, that that development should not be confined to Canada, but that Americans as well as Canadians should be given the right to use what power may have been authorized in Canada, because we feel that no matter whether there is an available market near by now in Canada, that the men who have spent the amount of money that has been spent in the development of power plants on the Canadian side will find a market for that power somewhere in Canada if they are kept out of the United States; and it is not alone on account of the fruit industry and on account of the many enterprises which now take power from the Albion Power Company, and which are looking forward to the time when they shall obtain their power from Niagara Falls, that we feel that we want this power brought down to us. Albion has had for years, and when I speak of Albion it includes also Middleport, Holley, and Brockport, but one railroad.

We have been at the mercy of that one railroad as to our shipping facilities. There has now been organized a railroad running east and west, paralleling the Falls branch of the New York Central Railroad, and that road will undoubtedly be built if power can be obtained from Niagara Falls for its operation. If that power can not be obtained, in my judgment it will mean a death blow to that road, which has been a cherished prospect for all our citizens for a great many years. Besides the east and west road there has been incorporated a north and south road which is to connect Batavia, which lies 18 miles south of Albion, with Lake Ontario, where there is an excellent harbor known as Oak Orchard Harbor, and this north and south road has been incorporated, and if electricity is available from Niagara Falls will unquestionably be built, thus opening up the roads that run south from Batavia into the coal districts to all that northern country and giving a harbor on Lake Ontario. Besides that, the Albion Power Company has entered into various contracts with municipalities on the strength of this proposed transmission of power. No later than last spring the village of Brockport entered into a five-year contract, and one of the inducements that was offered and one of the things that was held out was that there would soon be power available from Niagara Falls.

Now, we feel that it will be a crippling of not only all the industries that are established there, not only of the fruit interests of Orleans County, but also of numerous other industries that are proposed. Corporations have been organized, there has been a general revival and an interest in business throughout that section since it was learned that we would have this power at our command, and we saw no reason why these smaller places between here and Rochester should not grow as has grown Niagara Falls, and should not be the center of enterprises such as exist here to-day. We believe that a bill such as this, which imposes upon the American citizens, as we believe this does, the right, or takes away from them the right, to bring into this country electric power which is bound to be developed in any event is an injustice to the community which would have the benefit of that power.

We believe also that your committee, having come here to-day and having seen the condition of affairs at Niagara Falls, will know that a great deal of this talk about saving the falls is in a sense hysterical. I was surprised—I read in many magazines that the falls were practically dry, and I had come up to look at them to convince myself that they were in the condition that they are to-day; and we believe that this committee on careful consideration of all these facts will see that not only Niagara Falls but the entire community of western New York will be benefited by striking out at least that portion of this bill which debars from the United States the importation of electrical current which has already been authorized. I thank you, gentlemen.

The CHAIRMAN. What is the total amount of power already contracted for to be brought in from Canada?

Mr. CHURCH. By what company do you mean?

The CHAIRMAN. These companies at Albion and the other towns that you mention.

Mr. CHURCH. In horsepower?

The CHAIRMAN. Yes.

Mr. CHURCH. I am unable to give that to you, because I am not familiar enough with the situation. We have contracted at Brockport, Middleport, and Albion, the three municipal contracts, and for the Western House of Refuge for Women, in Albion, besides our private lighting; and there is also a small village, to which we have a transmission line, that has 350 inhabitants, I think—the small village of Gaines—and the village of Holley, for which there is a franchise.

The CHAIRMAN. Have either you or those whom you represent given any consideration to the subject of how much water might be withdrawn from the river without serious injury to the falls as a scenic spectacle.

Mr. CHURCH. We have not given consideration to it in cubic feet. In our belief the amount that has been already withdrawn from the falls is not perceptible to the eye of the ordinary observer.

The CHAIRMAN. What proportion do you estimate is that which is now being taken to that which is under contract or franchise?

Mr. CHURCH. Roughly estimated, I should suppose it was about one-sixth.

The CHAIRMAN. That is, you think six times as much as that which is now being taken could be taken without injury to the falls?

Mr. CHURCH. I should think so.

The CHAIRMAN. How is it in regard to the farmers in your county,

which would they prefer, the additional facilities afforded by the use of power or the continued existence of the falls?

Mr. CHURCH. Well, if it came to a question of the continued existence of the Falls, it might be they would prefer the continued existence of the Falls.

The CHAIRMAN. Suppose it was a question between some additional facilities such as would be afforded by electricity and taking away half the water of the Falls, which would be their preference then?

Mr. CHURCH. Well, if the half were not visible to the naked eye, I do not think it would make any difference to them.

The CHAIRMAN. Have they given any careful consideration, or have you, to what would be the effect of taking away a third or a half of the water?

Mr. CHURCH. No; I do not think they have.

The CHAIRMAN. Has any one of those with whom you have talked given any careful consideration to that subject?

Mr. CHURCH. I doubt their having given careful consideration as to the amount of water taken away or the amount that would be necessary. They have had the general belief that this development of power here would not take away sufficient water to injure to any appreciable extent the scenic beauty of Niagara Falls.

Mr. ALEXANDER. You do not represent a power company?

Mr. CHURCH. No.

Mr. ALEXANDER. Simply a transmission company?

Mr. CHURCH. I do not represent a transmission company.

Mr. ALEXANDER. You simply represent these towns that desire to get power?

Mr. CHURCH. That is all.

Mr. ALEXANDER. As I understand you, they have made no contract yet with any power company?

Mr. CHURCH. They have made a contract with the transmission company—the local power company has made a contract with the transmission company to obtain its electric power through them.

Mr. ALEXANDER. You do not know about how many horsepower they have contracted for?

Mr. CHURCH. No; I do not.

Mr. ALEXANDER. How long ago did they make this contract?

Mr. CHURCH. About a year ago; and I understand also that the transmission company has a contract with the railroad company which is proposed to run east and west, and also has under negotiation a contract with the north and south railroad company to run from Batavia through Albion to Lake Ontario.

The CHAIRMAN. That is all, Mr. Church.

STATEMENT OF HON. O. W. CUTLER, MAYOR OF NIAGARA FALLS.

Mr. CUTLER. On behalf of the city of Niagara Falls and the citizens I want to thank you and Colonel Alexander and Mr. Cassidy for having come here and subjected yourselves to the hardships of the trip. As you know, we hope that you have enjoyed the day, and as we are satisfied you have and as you probably will know from some little correspondence with me and I presume from others that this bill which you have in hand has caused our citizens a great shock and a great deal of alarm, as never before this until it was brought to our attention in

this way has the matter of impairment of the scenic beauty of the Falls ever been considered by our citizens. It has never been the subject of conversation or discussion in any way.

We, who have been accustomed to see the Falls and the various points of interest here from day to day for years believe—and I do not know that our citizens all fully realize what the more intelligent and those who have given it more thought do, that if this bill in its present form should be enacted it would be a very great blow to the material interests of this city. The city has grown since the development of power here over 200 per cent. When the power was turned on we had a city of 10,000 inhabitants; now we have 30,000; and that has grown altogether, I think, on account of this power development—the capitalists and artisans that have been attracted here. Millions of dollars have been invested and millions more are being invested, where the improvements are nearly completed but not in shape yet to turn on the power, and if this drastic measure should be adopted it would not only work this injury to these capitalists, who, perhaps, as a great many people would feel, could stand it, but it would affect, say, the 20,000 increase in population here, many of whom have come here and have bought their homes, and a majority of them not paid for but paying for them; and of course if the measure in its present shape should be adopted, why it would, I think, bring disaster to this class of people, and not only to them, but to our local capitalists who have invested in business blocks here. Property on the main street, acting through the influence of this development, has advanced from \$400 a foot to \$1,000 a foot.

Now, if this business and these prospects of enlargement and increase here should be taken away—while I would not want it to go out to the public—in my opinion these properties would shrink 60 per cent; so it is not only the capitalists that would be affected, but the class here of our citizens who could ill afford to lose; it would be ruination to them. But I did not arise for the purpose of making a speech, only that thought came to me as I got upon my feet. We expected when we came in here to sit down and have a little talk and conference, and we will proceed in that way now if you prefer to. Still, it has been suggested since we came in that a gentleman who is well prepared, representing the citizens—two or three—would make a very short talk to you, and Mr. Porter, who wants to go to Buffalo this evening, would like to talk about five minutes, and then if agreeable we would like to introduce Mr. Cary and Mr. Brackenridge. But we want to meet your wishes, knowing that perhaps you may be very much fatigued, and we do not want to ask you to adopt any other form of procedure here than has been suggested, and we will do as you prefer.

The CHAIRMAN. Go right ahead. I am not sure now that we can give any particular time to-morrow to hearings. We have heard a great deal in regard to this, as you know, already. The legal arguments have been presented to us at great length, and the arguments of engineers, also in regard to the interests of the locality here, and yet we would be glad to hear more on the subject. I think this time, however, is the best.

MAYOR CUTLER. We want you to feel that this is a citizens' representation here and simply to acquaint you with our feelings and our sentiments on the subject, and, as others will of course go over it, I need not say anything more.

Mr. ALEXANDER. How long have you lived in Niagara Falls?

Mayor CUTLER. Thirty-nine years.

Mr. ALEXANDER. And how long have you been mayor of this city?

Mayor CUTLER. I was mayor in 1895, and I have been mayor since the 1st of January, 1905—this term.

STATEMENT OF COL. PETER A. PORTER, OF NIAGARA FALLS.

Mr. PORTER. You have seen all the big power plants. I want to call your attention to the injustice this bill would do to the smallest power plant on the river. I have, at the Cataract House, which is situated on the State reservation about 400 yards above the Falls, a small water power of about 380 horsepower. There is the official matter, from the commissioners' report of a recent year. This water power was built in 1836, as shown by the order. It ran, taking the water in the wing on the upper side of the reservation, running down through an open canal to here. A State reservation was taken. In 1883 or 1884 the commissioners passed a resolution asking the appraisers appointed by the State to appraise this property here, which then belonged to the same owners as the Cataract House, without reference to the water power, stipulating that the Cataract House should have the water power which was in that canal as long as the canal was open, and, when the commissioners wanted, it should be at the expense of the owners of the Cataract House put underground.

In 1893, I think, at the direction of the commissioners of the State reservation, I put in at an expense of \$10,000 this conduit. The conduit runs from below the foot of Mill Slip, as they call it, to the Cataract House, about the center of it. Mill Slip is the continuation of First street. This is the open wing; this water-power right is on the State reservation, the intake by the consent of the commissioners and the appraisers, approved by the court, and the outlet from the hotel to the river goes into the river just above Goat Island Bridge. I want to submit that this is not such a water power as the Falls is intended to be protected from by this bill; it takes the water above the Falls; it returns it to them below the Falls, and the intake and outgo by consent of the State reservation is on the State reservation.

Mr. ALEXANDER. For domestic purposes?

Mr. PORTER. For domestic purposes in connection with the property at the hotel.

The CHAIRMAN. Where do you use this 380 horsepower?

Mr. PORTER. It is for use in connection with the hotel.

The CHAIRMAN. Do you use as much as that around the hotel?

Mr. PORTER. I am not using as much as that now—not around the hotel. I do not run it; but it is there.

The CHAIRMAN. Are you withdrawing water enough to create 380 horsepower?

Mr. PORTER. In the summer they withdraw some, but I do not know that it is as much as that.

The CHAIRMAN. Have you ever utilized the 380 horsepower?

Mr. PORTER. It has been utilized in different parts along the same property—not by the same owners—and when the State declined to pay for the water power in connection with it they gave the owners of the property who owned on both sides the right to utilize and keep this water and put it underground in conduits, at their own expense.

The CHAIRMAN. Is not this right to use restricted so that it is only for certain purposes?

Mr. PORTER. I think not.

The CHAIRMAN. Is it absolute?

Mr. PORTER. It is for the hotel property. The hotel property was not only on this side, but included a long strip of the river front opposite which the State reservation took.

The CHAIRMAN. Is that the original grant?

Mr. PORTER. "As the water then flowed" was the terms of the wording.

The CHAIRMAN. And for use in connection with the hotel?

Mr. PORTER. With the hotel.

The CHAIRMAN. So that you do not use this for outside purposes?

Mr. PORTER. No, sir.

The CHAIRMAN. Only for the hotel?

Mr. PORTER. Only for the purposes on that property.

The CHAIRMAN. How can you use 380 horsepower in that hotel?

Mr. PORTER. They are not using it to-day.

The CHAIRMAN. Were you ever able to use it?

Mr. PORTER. Yes, sir; you can take that power for hotel purposes and run ice machines, fire protection, elevators, and at night turn it into the lighting of the hotel for electric-light purposes.

The CHAIRMAN. I should think with that full amount of power there would be danger that something would move too rapidly; that you would find you have too much power.

Mr. PORTER. Nothing moves too rapidly for Niagara Falls.

The CHAIRMAN. Have you a copy of your franchise or grant?

Mr. PORTER. I have one and will furnish it.

The CHAIRMAN. Of course it is not necessary to say, Mr. Porter, that you are not the man we are after.

Mr. PORTER. I understand that. The water is taken from the river above the Falls and returned to it above the Falls.

The CHAIRMAN. You did not quite state that before. You said below the Falls before.

Mr. PORTER. I meant to say above the Falls, below Goat Island. I do not think it would hurt the scenery, and I suggest a modification of the bill so as to protect that right, which is the earliest right granted by the State for power from the river.

The CHAIRMAN. Perhaps you had better give Mr. Cassidy a copy of your franchise.

Mr. PORTER. I will do that to-morrow morning.

STATEMENT OF EUGENE CARY, ATTORNEY AT LAW, OF NIAGARA FALLS.

Mr. CARY. I was asked by a committee of citizens to represent the city of Niagara Falls and its interests. I took some pains to prepare to speak on that subject, but I should not be guilty of inflicting any such speech as I have prepared on members of a committee at this time of night. I appear for the people who, of all people on earth, are the most vitally interested in this bill. We hold the falls of Niagara as our proudest possession and our most valuable asset. The grandeur and beauty, which are a source of joy to the occasional visitor, are to us a daily source of pleasure and inspiration. We have no

desire to have that beauty impaired. We believe it is possible to continue the industrial development that has been seen here without injury to the falls of Niagara. We know from our own observation that there has been no impairment of the beauty by the diversion that has already taken place.

Twenty years ago last October I became a resident of this city. Since that time I have lived within not over three or four blocks of the rapids. In the last fourteen years I have lived within two short blocks of the rapids, always in sight from the windows of my house. The roar of the cataract is as loud as when I first heard it, the flow of water to-day is as great as when I first saw it. No human eye, in my belief, can detect the slightest impairment of the scenery of Niagara caused by taking water from Niagara Falls. Last spring, when at Atlantic City, I met a lady from Washington, who told me that she was very fond of visiting Niagara and used to come here, but she could never come again because it would hurt her so to see those bare rocks where the water used to flow. I suggested to her that she might come and mingle her tears with the upper river, as it would certainly affect the flow of the falls just as seriously as it had been effected by the diversion of water that had taken place.

There has grown up here in the last few years a city—the mayor did not fully state the growth, because the Niagara Falls Hydraulic Power and Manufacturing Company began taking water from here in the seventies—and the little village of four or five thousand has grown to the city of nearly 30,000. Here processes have been put in operation by cheap power, which are not merely completing an industrial development here, but which will contribute to the industrial development of the whole nation. Here aluminum, which is used in making Government armor plate, has been reduced nearly to one-half its former price and is being manufactured on an enormous scale and the company is planning to largely increase that product and has already contracted for the machinery and apparatus. Bleaching powder, entering into so many processes, is being made here cheaper than ever before and other processes of the same kind, the use of which and the benefit of which is not confined to this Niagara frontier, but which enter into processes of manufacture all over the United States. I think it is within bounds to say that the passage of this bill will strike a blow to material interests not less in effect than the Baltimore fire—a destruction of material interests as great as that will take place by the passage of this bill.

Now, as I say, there can not be any question in my mind that no impairment of the Falls at the present time has taken place. I would like to quote the language of one of our oldest residents, published in the paper a week ago. He said: "Few can say as I can, that they have lived within the sound of the cataract for seventy-five years and for more than fifty years within gunshot," and then goes on to say that he would not misrepresent; the simple truth is sufficient; go and look upon the river—look upon the tumultuous rapids and ask when, except when affected by very high winds, was the flow of water greater than to-day? There are numerous gentlemen in this city of the very highest character and standing who can be produced before you and who will testify to the same effect.

Now, gentlemen, I submit that the development of the industrial resources of the nation has always been a matter of Congressional

concern; every tariff bill upon our books from the foundation of the Government testifies to the interest of Congress in the industrial development of the Nation, and we ask that this bill be so amended as to permit a further industrial development in so far as it can be done—at least in so far as it can be done without material injury to the beauty of the Falls. The test of the effect of this diversion of water is the human eye. Until the eye of the average observer can see that the Falls has been injured by diversion no injury has been done to scenic beauty. Of course these matters have all been carefully considered by you, but I speak here to testify for the people of this city, who love the Falls as much as the people of any community can, that this talk of injury up to date has been grossly exaggerated. I would like to add one little thing to show the value—

The CHAIRMAN. Of course that has certain additional sanction, Mr. Cary, as coming from a resident. We have been having hearings for nearly two weeks, in which that statement has been repeatedly made to us. We have on file some eighty affidavits to that effect.

Mr. CARY. We have a gentleman who has lived eighty years here and he told me that he would testify before you that there had not been the slightest possible effect on the scenery by the diversion that has taken place. Hundreds of men of the best standing can be produced who will testify to that effect. We do not wish to injure the Falls.

There is one other point I would like to make. I wish to say something of the value of this newspaper claim that has been raised—this clamor that has been raised on this subject. You passed to-day over the riverway skirting the park—on one side the park, on the other side the buildings fronting the park. That street railroad there is on the State reservation.

A number of years ago I went to Albany as the representative of the street-railroad company in favor of a bill to permit that railroad to be built. Someone started the cry that the State park was to be desecrated by a private corporation. When I reached Albany I found the editorials in the New York Tribune, the Sun, the Evening Post, and every paper in the State of New York that is now joining in the clamor to save Niagara, demanding of the legislature that they prevent the profanation of Niagara by allowing the construction of that railroad, and I could not get a respectful hearing before the committee. Two or three years later, with the consent of the commissioners of the State reservation, who had made up their minds it was wise to have that railroad there, and quietly, without any clamor, a bill was passed, was signed by Governor Roosevelt, and the papers have said nothing about the profanation or desecration of Niagara by that railroad. A little agitation started by someone easily grows into this tremendous clamor that has been heard. We people here believe that it is unjustified, that it is not based upon fact, and that we here know actually more about the real situation than the people do from California to Texas who have been sending in petitions about saving Niagara.

I thank you.

The CHAIRMAN. What quantity of water do you think can be withdrawn from the Falls without, as you say, materially impairing their beauty?

Mr. CARY. I am not an engineer. I can only say this, the water that is now being drawn on the Canadian side is taken from a point

below where the water parts between Canada and the United States and comes down the slope, consequently the water that is to be taken by those three companies can not detract from the fall of water over the American Falls. Now, as the water actually withdrawn by the two power companies on this side has caused no visible change in the American Falls, I think I am quite within bounds in saying that the withdrawal from the American side of twice that amount would not be visible, and the withdrawal from the Canadian side takes place at a point where it cannot affect the flow over the American Falls.

The CHAIRMAN. Well could we entirely leave out of our thought the falls on the other side. You are aware as to where the boundary is, I suppose, that it goes through near the center of the Canadian Falls—that is the boundary between Canada and the United States.

Mr. CARY. Well, I am not an engineer and engineers can figure this much more accurately than a layman; that the immensity of the volume on the Canadian side—I believe some 90 per cent goes down that side.

The CHAIRMAN. Yes; variously estimated at from 87 to 90 per cent.

Mr. CARY. If the amount that I have known to be withdrawn on this side has not visibly affected the Falls where some 10 to 20 per cent is going over, I do not believe the withdrawal of the amount that they expect to withdraw on the Canada side can possible affect the volume of water which is seven or nine times as great as on this side.

The CHAIRMAN. What share of the water that is withdrawn on the American side do you take it is withdrawn from the American Falls? Do you regard it as all withdrawn from the American Falls?

Mr. CARY. That is my understanding; it is practically all. It comes below the dam in the river where the slope begins, and it is impossible when that water comes down that slope for it to be drawn to any great extent from one side to the other.

The CHAIRMAN. So you are basing your calculation on the thought that whatever is withdrawn for the two power houses on this side is taken from that which would otherwise go over the American Falls?

Mr. CARY. I think almost entirely so; yes, sir. I understand that it is withdrawn from below where the downward rush begins; that is, mostly.

The CHAIRMAN. We would really like, if you have any facts to give in support of that position, to have them. We have had estimates by those who claim to be experts that six-sevenths of the amount taken on the American side is withdrawn from that which would go over the Falls on the Canadian side.

Mr. CARY. If that is true, I am wrong. I am not an engineer, as I said.

The CHAIRMAN. Your calculation has all along been that the case is as you have stated?

Mr. CARY. Yes, sir.

The CHAIRMAN. In cubic feet, what amount do you think could be withdrawn from the Falls without material impairment?

Mr. CARY. I would have to depend entirely upon engineers for that.

The CHAIRMAN. What amount do you understand is being withdrawn now?

Mr. CARY. I understand that the estimates of the flow over Niagara Falls vary from 224,000 to 275,000 cubic feet per second.

The CHAIRMAN. No. From 180,000, which is the low water of the Falls, to 222,400, that is the ordinary, and then it occasionally goes as high as 250,000; some estimate as high as 270,000.

Mr. CARY. 275,000, I understand, some of them estimate. That, of course, would be simply a matter of mathematics. I think I am right in one thing; it may be that these Falls here take somewhat from Canada; of course, then if the plant was doubled they would be taking in the same proportion from the Canadian Falls and would not affect us; but I think the Canadian plants are not drawing from the American side of the river and will not affect the American Falls, and I would still be right in my conclusion that if the amount which is now withdrawn would not affect it, I do not think the doubling of it would.

The CHAIRMAN. You would think double the amount now taken would not or might not injure it?

Mr. CARY. I do not think it would. I do not think the Canadian development affects the American side at all, and I think double the amount could be taken without injury to the American Falls.

The CHAIRMAN. Have you made any computation of what multiple of the amount now taken is in contemplation—the amount which would be taken under franchises outstanding?

Mr. CARY. Why, I know that the Niagara Falls Hydraulic Power and Manufacturing Company are entitled to take, I believe, about 4,500 cubic feet more than they are now taking, or 5,000, are they not?

The CHAIRMAN. They claim the right to take 9,500 feet—more than double what they are now taking.

Mr. CARY. And the power company's franchise for a second tunnel would be 8,600 more. The total amount would be a little more than double that now taken.

The CHAIRMAN. Now, on the Canadian side?

Mr. CARY. I have not taken that into account.

The CHAIRMAN. The amount contemplated to be taken there is more than six times the amount they are now taking.

Mr. CARY. That would still come, though, from a point where it would not affect the American Falls.

The CHAIRMAN. Well, I ask you again, Ought you not to take into account the Horseshoe Fall, a portion of which is in American territory?

Mr. CARY. I think that if the Canadians will agree with you to do it, but I do not think that we can afford to build up the industries on the Canadian side at the expense of the power that they can furnish us to use on this side.

The CHAIRMAN. The most of the capital that is invested on the other side is American capital, is it not?

Mr. CARY. I think the Canadian Niagara Power Company is largely American, and the Ontario. I understand the Toronto Power Company is mainly Canadian capital.

The CHAIRMAN. Have you ever made any computation of the total amount of horsepower used in the Province of Ontario?

Mr. CARY. I have not.

The CHAIRMAN. How do you think it compares with the amount that could be developed by the Falls on the other side?

Mr. CARY. I have no idea.

The CHAIRMAN. Possibly if you would look that up, you would find some interesting facts in regard to it.

Mr. CARY. I simply say what I have seen at the Falls and the effect. When I go into engineers' calculations I have to depend upon engineers.

The CHAIRMAN. Suppose we should make regulations which would restrict the diversion on this side, how do we know that the amount of water which would go over the Falls would not be determined by what should be withdrawn on the other side? How do we know but that they might go ahead with further diversions? Are there not three or four franchises outstanding there that are not in use at all?

Mr. CARY. I understood from the park commissioners' last report that I saw that they said there were three more places where power plants might be developed with them, six in all, and they had granted three, and their last report, I understood, of the commissioners of the park recommended that they should not grant the other three.

The CHAIRMAN. Would you be able to assure the members of this committee that there was a fixed limit in the quantity of power that would be withdrawn on the Canadian side?

Mr. CARY. No, sir; I do not think it would be possible for me or anyone here to do that.

The CHAIRMAN. If there were some effort made to restrict the use on the American side, is it not probable that the American capital that would be invested here would go to the other side of the river and there divert water from the river to an extent as great as that which is prevented from being diverted on this side?

Mr. CARY. You mean, if you prohibit our diverting here, is it possible that capital would go over there and divert to the same extent you forbade it here?

The CHAIRMAN. Yes.

Mr. CARY. I think it would. I think that with the use of the power upon that side that it would be very possible to develop manufacturing plants that would use large amounts of power, which would shut us out of the foreign markets.

The CHAIRMAN. And the power would be used on this side?

Mr. CARY. No; I think it would be possible for them to build it up there. I think if you prevent using it here they could use it there for concerns which would shut us out of the European market.

The CHAIRMAN. How?

Mr. CARY. In the products they could make more cheaply with that power than we could make in this country, if they are driven to it. If the power can not come in here I think it will simply encourage their manufacturers, because the companies have developed the power and it will have to be used.

The CHAIRMAN. Can you or anyone else—engineer or layman, as you term it—give any assurance with respect to the point where the amount developed will begin to seriously impair the beauty of the Falls?

Mr. CARY. I think competent engineers could.

The CHAIRMAN. Has anyone given you that assurance—told you the exact amount?

Mr. CARY. I do not think so.

The CHAIRMAN. Have any two given you the same opinion on the subject? We have been examining engineers some little time on this subject.

Mr. CARY. I think the minimum between high and low, their minimum, would be pretty safe.

The CHAIRMAN. What is their minimum?

Mr. CARY. I have not looked up the engineers' estimate. I am told they figure 40 per cent the minimum; some 33 per cent.

The CHAIRMAN. Right on that point, a little further. You say you understand that 40 per cent is the estimate?

Mr. CARY. Yes, sir; I so understood. What I have read has been in the newspaper reports, although we have an engineer here with whom I have talked and who is far more capable of answering these questions than I am.

The CHAIRMAN. Some say 33 and some 40 per cent?

Mr. CARY. Some say $33\frac{1}{3}$ and some 50, I understand. That depends entirely on my recollection.

The CHAIRMAN. Do you have any idea—of course you have your general ideas about engineering, about these Falls—that is the reason you are appearing before us?

Mr. CARY. Yes, sir.

The CHAIRMAN. Do you say to us as members of this committee that you or any engineer or anyone can tell how much water can be withdrawn from Niagara River without impairing the beauty of the Falls?

Mr. CARY. I should say that with a given volume of water flowing with a given velocity over a dam the depth of that water—average depth—is a matter of mathematical computation. My eye might testify from looking at it, but it is a matter of mathematics if you know the volume and the velocity and the width of the dam; and if you know that, and you know how many cubic feet are withdrawn at certain points, it is a matter of mathematics just how many inches it would reduce that average flow. Now, perhaps, as well as engineers, we could tell after looking at the flow of water over that cataract what effect an inch or 2 or 6 or 8 inches more or less would have on its beauty.

The CHAIRMAN. Do you know the depth of the Canadian fall?

Mr. CARY. I do not. I do not think I have ever heard it stated.

The CHAIRMAN. Does anyone else know what it is?

Mr. CARY. If they were to attempt by any process of measuring by the eye they never could tell; but if they know the volume—and your whole bill is based upon the fact that you do know the volume, because you say it is 224,000 cubic feet per second—if they know the volume and the velocity and the width of the dam, it is a matter of mathematics, and it can not be anything else.

The CHAIRMAN. We would like to have you give us a formula on which you figure that. You say it is a matter of mathematics.

Mr. CARY. I do not figure it. I am not up on engineering. There is a rule—Francis's rule—for computing the depth of water going over a dam where you know the volume, the width of the dam, and the velocity of the water.

The CHAIRMAN. Do you think we could apply Francis's formula to this situation here?

Mr. CARY. If you know the volume and you know the velocity.

The CHAIRMAN. What was Francis's rule made to apply to?

Mr. CARY. I can not tell you. The engineers here can tell.

The CHAIRMAN. Was it made to apply to Niagara Falls, or anything like it?

Mr. CARY. I think there is a dam, with water coming at a certain velocity and a certain volume.

The CHAIRMAN. Is Niagara Falls like an ordinary dam?

Mr. CARY. No; because its contour is broken.

The CHAIRMAN. If you have any formula to apply, we would like to hear it.

Mr. CARY. I take that entirely upon engineers' statements that that is practically so.

The CHAIRMAN. How does the general depth of water in the Lakes and the river in the year 1906-1905 compare with the average depth?

Mr. CARY. For the last three years, I think, in 1905 the depth in the river was higher than I have known it to be for some time. Not higher than I have known it to be at other times within the twenty years that I have been here; higher than I have known it at some times; in other words, I have known it to be high. I have known it to be what they call high.

The CHAIRMAN. How much higher than the normal level has it been during these recent years?

Mr. CARY. I could not tell that by any exactness.

The CHAIRMAN. There are figures in regard to that, are there not?

Mr. CARY. I presume so.

The CHAIRMAN. The water gauge, from day to day?

Mr. CARY. I understand so.

The CHAIRMAN. You say you see no difference in the amount of water flowing over the Falls. Might not that greater height of water prevalent in the lake, which is the reservoir out of which the river flows, and in the river explain that fact, even though there had been a considerable depletion by diversion?

Mr. CARY. I think not, for the reason that since that diversion was carried on to a considerable extent and fully half as much as now, there were also periods of low and of high water, and there have been periods of high water since I have been in Niagara Falls when I think the water was practically as high as it has been.

The CHAIRMAN. You took no actual measurements?

Mr. CARY. No.

The CHAIRMAN. You say the way to tell whether there is an injury to the Falls is by the eye?

Mr. CARY. Yes, sir.

The CHAIRMAN. Would it be your thought, Mr. Cary, that we should wait until the eye detects a serious injury to the Falls before we should think of taking any action?

Mr. CARY. I do not say that. I should say, however, that where there were interests so vast to be affected, that within perhaps a little less, granting a little less, than engineers figured would be the effect, you would be safe in allowing that to go on, with the certainty that it would not affect it to the eye of the average observer.

The CHAIRMAN. Here is the situation presented to the committee: Any measure that we have had under consideration is temporary in its nature, to last for three years or two years, or until a treaty is framed. Would you say that this committee was justified in taking it for granted that we were safe in allowing this depletion to go on to three, perhaps four, times the present amount—let the matter go—or would it be the part of wisdom to say: Let this depletion be checked for a few years until we can tell more accurately what its result would be. Suppose that position was put before the committee, what do you say should be done?

Mr. CARY. I think, as far as the depletion now contemplated on the American side—I am not speaking of any company with an unlimited franchise—let me take, first, the two companies that I know of that we have mentioned.

The CHAIRMAN. But there are two companies besides. One has 17,900 and the other over 10,000.

Mr. CARY. Allow me to take at first a basis. I know of two that you have spoken of. I feel absolutely certain that the diversion they contemplate will not affect the Falls, because I have seen the lack of effect of the diversion already made. Now, as to the next one, of 17,000, I understand that that company proposes—and that is a matter of engineering that I do not understand—to remove certain reefs and restore to the American channel the water that belongs to the American channel, and that if that is done the flow upon this side will be as great as it was without any diversion. If that is so, the beauty of the Falls on this side could not be impaired.

The CHAIRMAN. Now, you are a lawyer, Mr. Cary, and you realize that a certain comity must exist between nations on opposite sides of a river?

Mr. CARY. Yes.

The CHAIRMAN. Here is a cataract, divided into two parts. It is regarded as a great scenic spectacle, a splendid object—what do you say as to the right to do what you say without the consent of the nation on the other side, in view of the comity that exists between nations?

Mr. CARY. I believe you claim that they are ruining the falls in developing power to the extent they are?

The CHAIRMAN. I would like if you would answer the question directly. What do you say as to the right, in view of the comity that exists between nations, to do that?

Mr. CARY. I meant to make my answer direct. But, in the first place, we are entitled, are we not, to a larger portion of that water than we are getting?

The CHAIRMAN. There were six commissioners that, some ninety years ago or a little less, laid out the line with a view to giving to each side its share.

Mr. CARY. But it so happens that, through the rock formation, we do not have our share.

The CHAIRMAN. That, perhaps, may be true. I was not aware of that, however.

Mr. CARY. I am getting that from information.

The CHAIRMAN. Where do you understand the line to be?

Mr. CARY. I am informed it is practically the center of the Horse-shoe Fall.

The CHAIRMAN. I take it that boundary was fixed with a view to an equal division of the waters at the time.

Mr. CARY. Is there any such equal division at present?

The CHAIRMAN. It was intended to be.

Mr. CARY. From the engineers' reports you have.

The CHAIRMAN. I do not believe anyone can approximate that with any certainty.

Mr. CARY. The engineers and persons representing that company can answer those questions better than I can. I am not speaking for any company. I am speaking for the city here, and, as the mayor

has said, there is an enormous amount invested in manufacturing and in other ways.

The CHAIRMAN. Your position is substantially this: You would place no check upon the claims of these companies that are seeking to use power, not even for two years or three years or one year?

Mr. CARY. I would certainly limit the amount of power—the total that they could produce.

The CHAIRMAN. To what?

Mr. CARY. For instance, as to the two companies in existence, the limit which they have by their charters. As to the company which proposes to make this change in the river, if they can do what they say they can do and give us the navigation by canal that they say they can give, with no more effect upon the river than the engineers say, I should allow them to do it.

The CHAIRMAN. That is, with their 17,900 cubic feet per second?

Mr. CARY. If they can do it with the effect upon the river that they state.

The CHAIRMAN. What do you understand to be the effect upon the river?

Mr. CARY. The engineering work, they state, will bring over to the American side a larger proportion of water and will not result in any appreciable effect upon the American Fall.

The CHAIRMAN. Of course you must bear this in mind, Mr. Cary, the Canadians claim the right to divert as much as we do on this side and 10,000 cubic feet more, because they charge up to us what water is diverted through the Chicago drainage canal.

Mr. CARY. That is in the event that a treaty is finally made.

The CHAIRMAN. They can go ahead and divert it without any treaty, but they claim that as their minimum; they claim that as the minimum amount which they should withdraw. Have you ever figured how many cubic feet would be drawn out in case those privileges were all given?

Mr. CARY. I can not say I have. I have seen the figures. I would say I have rather assumed, under the circumstances, that the arrangement would be made by which the Canadian government would stop with the charters they have already granted.

The CHAIRMAN. Have you made any computation of the total amount it is contemplated to draw out?

Mr. CARY. No, sir.

The CHAIRMAN. Is not this true, that in the consideration which you and many of your friends have given to it there has been a sort of general confidence: Oh, this will be all right anyway; we don't need to make calculations of how much will be withdrawn; we do not need to go deeply into the engineering problems of it?

Mr. CARY. No. We have talked with engineers and with men whom I regard qualified to pass upon such questions and have taken their assurances, as being men who knew more about it than I did. I do not carry their figures in my head.

The CHAIRMAN. You do not recall the figures that they said could be withdrawn?

Mr. CARY. No; I do not.

Mr. ALEXANDER. Did you observe the condition of the Falls to-day as to the amount of water going over them?

Mr. CARY. I did not go down to the Falls to-day. I was there yesterday.

Mr. ALEXANDER. How did the condition yesterday compare as to other days?

Mr. CARY. I saw no change yesterday from any time that I have seen the Falls in recent years, with one exception. A large block of rock had broken away near Prospect Point, changing the current there somewhat so that the water near the point was much shallower than it was before that rock broke off. That has taken place some time during the winter.

Mr. ALEXANDER. Did you notice that a log had lodged on the American Fall near Luna Island?

Mr. CARY. I did not; I was not over there.

Mr. ALEXANDER. Have you noticed at all that there is a log lodged there on the American Falls, near Luna Island?

Mr. CARY. I have often seen them there. Whether it is the same log or not, I do not know.

Mr. ALEXANDER. I noticed one there to-day. I was told it had been there some little time. It protruded over the falls 8 or 10 feet.

Mr. CARY. I have seen the falls dry from the first Sister Island to the mainland, and within a few hours I have seen a flow of water; the wind affects that very much.

Mr. ALEXANDER. The waters flow between the first Sister and Goat Island now more than formerly because they have been blasting, bringing the water down.

Mr. CARY. I have seen that change in a very few hours there.

Mr. ALEXANDER. Do you represent any power company?

Mr. CARY. No, sir.

Mr. ALEXANDER. Anyone in the room that does?

Mr. GRAY. I represent in a way a local company.

Mr. ALEXANDER. Are you a member of the delegation that the mayor has brought here?

Mr. GRAY. No. I came to speak about the Woodford power plant, down the river.

Mr. ALEXANDER. Then this delegation that you are speaking for is simply a delegation of citizens of Niagara Falls who have no interest in the power companies?

Mr. CARY. That is right, sir. We are interested in the prosperity of our city and we have an interest in the cataract, and if I have made mistakes in answering it is because I am not an engineer.

The CHAIRMAN. The difficulty about the engineers is a fatal lack of agreement among them.

Mr. CARY. I would expect them to agree exactly on a problem of that kind if they agree in the main.

The CHAIRMAN. What is the general opinion here of the average depth on the American side there?

Mr. CARY. You ask me about the general opinion. I can not give it.

The CHAIRMAN. What is your opinion, then?

Mr. CARY. As for myself, I have stood there and tried to form an idea of what it was out where the water was green and I have never been able to satisfy myself that I knew anything about it. Sometimes as I stand and look at it it looks deeper, and again, if I just glance at it it does not look so deep. It depends somewhat as the light strikes it, but in guessing at it I could not give any idea that would be of any

value on that subject, and I do not believe anyone else could in looking at it.

The CHAIRMAN. If you can form no opinion as to the depth of that fall on the American side, can you form an accurate opinion of the tendency as regards the Falls, whether the waters are higher or lower, whether they are affected by this power development or not?

Mr. CARY. I can say that looks to me just as it did when I first saw it. I can see that there is no difference there, and while there is a difference probably to the close observer in times when the wind keeps the water back it is seen in the rocks that I know in the upper rapids, but not seen at the curve of the Falls as I look at them. A man who sees it every day and watches it closely by hours might notice a difference between high and low water. I do not think the average observer would.

The CHAIRMAN. Of course, if you see a log on that crest that does not go over, that is something of an indication how deep the American Falls is?

Mr. CARY. I think not. It would be an indication of a rock. Years ago a man named Avery dropped into the rapids. He drifted down and caught on a rock near the edge of the Falls and for a whole day—and I don't know but two days—every possible effort that human ingenuity could devise was made to save that man's life, out on the edge of the Falls, because he had caught on a rock.

The CHAIRMAN. Suppose a log were to lodge there and were to protrude over 10 feet, and the water flowing over were only to come up for one-half the height of the diameter of that log—would not that show you something as to what the depth was over the Falls?

Mr. CARY. Not over the Falls. I would say over the particular rock that it lodged on.

The CHAIRMAN. Suppose it was; you could see that by the eye, you could tell then with substantial exactness?

Mr. CARY. Yes. I have not seen such a thing, so I could not express myself on that.

Mr. ALEXANDER. You were going to speak about the Avery Rock. Finish your answer as to the Avery Rock.

Mr. CARY. I do not know where that rock is. I simply know a man caught there, and they did not save him. He was swept over the Falls.

Mr. ALEXANDER. But you have never seen the rock?

Mr. CARY. No, sir. I have seen a man floating down in a boat catch on a rock and they finally got a rope to him and saved him.

Mayor CUTLER. Mr. Brackenridge has been engineer in charge of the whole of the Niagara Falls development up to within two years ago, when the State of New York asked him to relinquish that and become a member of the advisory board of the present barge canal development.

The CHAIRMAN. Would you like to answer questions, Mr. Brackenridge?

STATEMENT OF MR. BRACKENRIDGE, ENGINEER, REPRESENTING CITY OF NIAGARA FALLS.

Mr. BRACKENRIDGE. Yes, I would be very glad to.

The following questions were then asked by the chairman and the following answers given by Mr. Brackenridge:

Q. What do you think, Mr. Brackenridge, upon this question as to

whether any engineer can determine what effect the withdrawal of a certain quantity of water will have on the Falls? Can he do it?—A. Can it be exactly determined?

Q. Yes.—A. No, sir; I think it would not be possible to determine it exactly.

Q. Can he approximately?—A. As to how much the Falls would be lowered by the deflection of a given quantity of water?

Q. Yes.—A. No, sir; there is no formula known by which it could be determined with any exactness.

Mr. ALEXANDER. He asked, approximately.—A. There is only one formula and that is Francis's formula for water flowing over a weir, which the contour of the Falls approximates, but it is not really a weir.

Q. That is, the formula would not apply to the Falls?—A. Not with precision; no.

Q. Would it apply even within 50 per cent?—A. I should not like to say.

Q. That is wholly an element of conjecture, is it not?—A. There is a large element of doubt in it, as to whether it would or not.

Q. I suppose no one has taken any measurement of the Falls on either side, as to their actual depth; that is, you can not tell by measurement what the depth is?—A. Not in all parts of it, because they are not accessible.

Q. The American side—what would you say was the range in the depth; from what minimum to what maximum?—A. On the American side?

Q. Yes.—A. Well, of course there is a great variation in the depth, due to the direction of the wind.

Q. At a normal stage, unaffected by the wind and about the normal flow, what would you say the depth was on the American side?—A. At about a normal flow, which is giving it about 224,000 cubic feet a second, the depth varies from three to four inches on the one side to perhaps three feet or over.

Q. How much over 3 feet, would you say?—A. I should think $3\frac{1}{2}$, possibly 4, feet in the deepest point.

Q. That is on the American side?—A. Yes; that is my judgment.

Q. What would you say as to the depth on the other side, on the Horseshoe Fall?—A. It is very difficult. We have always assumed, taking the proportion of the flow and the amount of water passing over the Falls, that it must be about 12 or 14 feet deep in the deepest point. We can get a very good idea of the depth near the shore as far as the rock is visible, but after that we lose sight of it, and there is no way to approach it by which measurements can be made.

Q. Would you think 12 or 14 feet was the maximum?—A. I should think that was about the maximum.

Q. Some one has made a statement that there is a story in an old guidebook of a boat loaded down to 20 feet or more going over the Falls. Is that authentic; that is the Horseshoe Fall?—A. I never heard it; no, sir.

Q. Of course, it might strike on the rocks and break in pieces and go over, even if there were only 12 feet?—A. And the force of the water might carry it over.

Q. What would you say was the minimum depth in the Canadian or Horseshoe Fall?—A. Of course the minimum, as it gets out to the rocks, goes down to almost nothing.

Q. And the average, you would say, was 6 or 7, or what would you say was the average on the Canadian side?—A. Well, I should think it would be 8 or 9 feet.

Q. The average would be 8 or 9 feet?—A. I should think so; yes, sir.

Q. Where the water is bluest is where it is deepest?—A. Yes. Of course this is all largely conjecture, as I said before; I have no exact way of determining.

Q. In view of that uncertainty as to the depth on the Canadian side—the contour of the crest—can anyone tell just what effect, or even approximately what effect, the withdrawal of a certain amount of water will have on the appearance of the Falls?—A. I do not think that could be determined mathematically. But I think that we could form a very fair estimate of it as a matter of judgment and experience rather than a matter of mathematical formulæ.

Q. It would be a matter of estimate?—A. Yes.

Q. In which there would be, is it too much to say, a large element of conjecture?—A. There is an element of conjecture; yes, sir.

Q. Is not there a considerable element of conjecture in it; pretty hard to draw the lines, perhaps, between what you said and “considerable?” I do not know that I ought to ask you that question. Now, you have seen the Falls under different conditions; high water and low water?—A. Yes, sir.

Q. East wind and west wind?—A. Yes; I think under all the conditions that have existed since I have been here.

Q. How many days in the month are there when the east or west wind affects the height of the water going over—the height of the Falls, on an average?—A. Well, the prevailing wind here is southwest, so that there are more days in the year when the wind is blowing up the river than there are days in the year when it is blowing down the river. Just what proportion I could not say.

Q. You say the prevailing wind is from what direction?—A. The direction going up the river.

Q. Blows up the river?—A. No; across the river, really; but rather more up than down.

Q. So that the Falls is more frequently lowered by the wind than it is raised?—A. Yes. I would say that it was. Of course it takes a very high wind to affect its appearance.

Q. On an average, how many days in a month is the height of the Falls affected by the wind, either way—you say it takes a very high wind—on an average?—A. I really could not answer your question.

Q. Is it more than three or four?—A. I should think not more than three or four or five days in a month.

Q. Is it as many as that?—A. Probably, taking the year around, the average per month, from the beginning to the end of the year—probably not as much as that.

Q. More affected in the winter season than the summer season?—A. Yes. The winds are usually higher in winter.

Q. What effect does the diverting of water from the Niagara River here above the Falls have on the level of the river above those diversions? What effect does it have on it?—A. It has none.

Q. Well, suppose you have a certain channel for a river, and you take out a canal to the right and the left—both sides—and withdraw a third of the water that is going through; you would not say it has no

effect on the level of the river above that diversion?—A. In this instance it is inappreciable. You could not measure it. I say none. I mean it is a level that can not be measured, and in this particular instance the river has a given velocity; there is a given discharge in the river; whether that diversion occurs or not, the same quantity of water passes down the river to the point of diversion.

Q. Suppose you have a cylindrical pipe 2 feet in diameter, and run it from a point up at that window to that door, and then you take it two-thirds of the way and bore two auger holes in the bottom of that cylindrical pipe; would you say that would not increase the flow from behind it?—A. If the opening in the end of the pipe were open?

Q. Suppose you bore two augur holes in the bottom of it and the water flows out of it?—A. It is a sealed pipe?

Q. Yes.—A. It would certainly increase the velocity. It would not increase the surface slope if the pipe were under pressure.

Q. Your idea is that it would lower the level of the reservoir. It would lower the level of Lake Erie?—A. If you draw more water from it. But in this instance you do not draw more water from Lake Erie. You draw that water from the Niagara River, which is a natural overflow from Lake Erie.

Q. So that, in your opinion, all that you draw out at the point of diversion by these canals is taken from the flow over the Falls?—A. Yes. But it does not affect the level of Lake Erie.

Q. Nor of the river above?—A. Nor of the river above.

Q. I am glad to have you give a decided opinion on that.—A. I have made a study of that.

Q. Then every bit that is drawn to the right or left, that is diverted, whether a mile or 2 or 3 above, diminishes the quantity that goes over the Falls?—A. Yes, sir. If it is returned to the river below the Falls it certainly diminishes the amount going over the Falls.

Q. Suppose it goes out and never comes back?—A. I use that in distinction to a power as in the case of Mr. Porter's, where it is taken at one place and returned again above the Falls.

Q. So the diversion is not followed by lowering the level of Lake Erie and continuing the same flow over the same Falls, but it is taken out of the flow over the Falls?—A. It is diverted from the flow over the Falls, but it has absolutely no effect upon the level of the river above or upon the surface of Lake Erie.

Q. What do you say, Mr. Brackenridge, about the diversion of water below the Falls, along by the rapids? I take it that would have less effect on the rapids than would the diversion of water above the Falls have upon the Falls. That is true, is it not; that is, the rapids would be less affected by diversion; their appearance?—A. Yes; I think that is so.

Q. What would you say was the average depth of the American Falls?—A. Taking it from the extreme side to side?

Q. Yes.—A. Of course, it is quite shallow near the shore.

Q. There are some parts you would almost leave out.—A. I should say the average depth was somewhere about 2 feet, at the normal flow of the river.

Q. What do you say about the share of the water that flows over the American Falls, what we call on this side, and that flowing over the Horseshoe Falls? What is the comparative volume?—A. We have made a number of experiments to determine that very question, and as near

as we can figure it we think there is about eight times as much going over the Canadian as the American.

Q. That is, you would make it eight to one?—A. Eight to one.

Q. Now, as regards these diversions there at Port Day, these two companies that have their intakes there, what share of the water that they draw off is withdrawn from the American Falls and what from the falls on the other side?—A. I can not answer that question with any degree of accuracy, but we think about 25 per cent.

Q. From the American side and 75 per cent on the other?—A. Yes, sir.

Q. So if there should be withdrawn on the American side the full amount here, 26,700, approximately 27,000, cubic feet, it would take on the basis of 25 per cent a fourth—between a fourth and a third—of the amount going over the American Falls, would it not; take somewhat in excess of a fourth?—A. Yes; about 25 per cent.

Q. According to the way you figure it?—A. Yes.

Q. How much would that lower the Falls on the American side?—A. We have not been able to find that it lowers them at all. We have tried various means to measure it, but we have never been able to get a result, because the flow of the Falls is so influenced by other conditions that it has been absolutely impossible for us to get any accurate gauge of what the effect was upon the Falls.

Q. You would not say, however, would you, that that permanent withdrawal of a fourth of the quantity on one side would be inappreciable because of other causes?—A. I would say that I think that it can not be detected by the eye, and when we make measurements to try to determine what it is, conditions change, change of wind or other conditions, which makes it quite impossible to measure it.

Q. Can not you eliminate the other causes such as wind, and so on, so as to tell just what effect it would have?—A. We have never been able to do so.

Q. In other words, you allow the level of the Falls to be influenced by the east wind or the west wind or by other complicating causes?—A. Yes, sir.

Q. So that the amount of water flowing through the river is but a subordinate factor. You can even withdraw a fourth or a third of it and it will not be noticed?—A. That may be; yes, sir. If we get a strong wind from the south it increases the amount of water going over the American Fall, and decreases the amount going over the Canadian Fall.

Q. Now, you stated that there is a fall here of which the depth is from 3 or 4 inches to 3 feet 6 inches; that fall is about 1,050 feet long?—A. About that.

Q. Now, would you say that a fourth of the water flowing over that fall could be taken away, as it would be taken away by these two companies alone, and you could not notice the effect of it?—A. We have not been able to notice the effect of it.

Q. As it is now, it is not anything like the quantity that would be withdrawn if they have the full rights that I have named here—about 27,000 cubic feet. Would you say that a fourth of that quantity—here is a fall 1,050 feet long, averaging 2 feet deep, from 3 or 4 inches to 3 feet and 6 inches, possibly 4 feet at the greatest depth—would you say that you could take away a fourth of that flow, scattered over 1,050 feet, and it would not be noticed?—A. I think it would not be

noticed; no, sir. You see, in order to withdraw that quantity of water there must be some depression at the point of intake else the water would not flow. It must have a slope and the minute that that occurs water is drawn from another point in the river, perhaps out toward the Canadian side, so that as more water is drawn more water is attracted from a greater distance and the volume increased in that way, so that it is not in direct proportion to the amount of water diverted.

Q. Where does that surplus of water come from?—A. It comes over the area of nearly the whole river.

Q. But you have stated that these diversions do not have any effect on Lake Erie or the river above?—A. The width of the Niagara River itself across toward the opposite shore; water must come to it as soon as the level of the water in the canal is lowered; more water must come from another place to occupy the space the depression of the surface has caused.

Q. I do not think you quite understand me about this. Here is a certain amount of water withdrawn, and you say one-fourth of that is taken away from the flow over the American Falls and three-fourths from the flow over the Falls on the other side?—A. Yes.

Q. That is, it is lowered on both sides?—A. Yes, sir.

Q. Now, how can you take out that fourth without lowering the level flowing over the American Falls?—A. Well, when I made that statement it was predicated upon what we are taking now. We can assume a quantity up to 100,000 cubic feet a second, if you please, and when you do that it must affect. There is a zone about that intake of the canal that is affected by that depression in the canal, and then that may change the conditions again. It may not be 25 per cent going over the American Falls there. There may be still a greater. It is not constant.

By Mr. ALEXANDER:

Q. You answered to Judge Burton's question, "If you divert water on either side it will not vary the level of the river or lake?" You said it would not?—A. Yes, sir; I did.

Q. You said you could answer that very positively, that it would not?—A. Yes, sir.

Q. How can you answer that very positively, Mr. Brackenridge? Have you experimented?—A. The Niagara River is the natural outlet of Lake Erie, and a certain amount of water, we will say 222,000 cubic feet per second, is flowing out of the Niagara River; we take from that river a certain proportion of the 222,000 cubic feet. Now, we do not make the river discharge any more water than that quantity, consequently it can have no influence on the surface of Lake Erie. The diversion of water at Niagara Falls does not increase the number of cubic feet per second flowing in the Niagara River.

Q. Supposing there are 222,000 cubic feet per second going over the Falls and you take 100,000 cubic feet per second and put it through a canal, would not that necessarily bring more water from Lake Erie; otherwise would not the flow over the Falls be decreased by that 100,000 cubic feet?—A. Yes, sir; exactly. The flow over the Fall would be decreased 100,000 cubic feet, but the flow from Lake Erie would not be increased. The water would simply be diverted from the Falls and put through another channel. We would not be drawing 100,000 cubic feet more than is naturally flowing in the river, and you can not

make any more water flow through the river unless you tip the river up to make it steeper, and consequently give it a higher velocity.

Q. That is, unless you should cut away at the entrance from Lake Erie into the Niagara River, deepen the bed?—A. Yes, or deepen it at this end to give it a freer discharge. You have got to give the water velocity in order to increase the quantity, and you can not increase the velocity of the water unless you increase its slope.

MR. JAMES S. SIMMONS. Mr. Brackenridge was asked to come on behalf of the board of trade. There are three companies that are seeking to divert water on this side of the river, and we secured Mr. Brackenridge, believing that he could give you the most capable testimony as to the amount of water that could be diverted without impairment to the Falls, so instead of our board of trade appearing here we thought we would get Mr. Brackenridge, who could answer that accurately for you; and the three companies all want to make a diversion, and we want to gratify them all as far as possible, or would like to see you gratify them, and we thought Mr. Brackenridge would be competent to say to what extent they could divert water without impairment to the Falls. The board of trade would like to have that done.

THE CHAIRMAN. Of course we have looked at the river as an entirety, and have thought of the diversions from both sides. What do you say, Mr. Brackenridge, would be the quantity of water which could be withdrawn from the Niagara River on the American side by the three companies? I suppose you have in mind the Niagara Falls Power Company, the Niagara Falls Hydraulic, and this other, well, it is the General Electric Company?

MR. SIMMONS. Niagara County Irrigation and Supply.

THE CHAIRMAN. What would you say about that, Mr. Brackenridge?

MR. BRACKENRIDGE. I did not understand your question.

THE CHAIRMAN. What quantity do you think could be withdrawn by the three companies, the Niagara Falls Power Company, the Niagara Falls Hydraulic Power and Manufacturing Company, and the Niagara County Irrigation & Supply Company, which is now controlled by the General Electric Company, without material impairment of the scenic grandeur of the Falls?

MR. SIMMONS. I thought you would ask him how much each company could divert with safety to the Falls?

THE CHAIRMAN. That term "safety." What do you mean by that?

MR. SIMMONS. In his opinion, as to what extent a diversion, or how many cubic feet per second each company could be permitted to divert without impairing the Falls.

THE CHAIRMAN. Let it be in that form. You now understand it, do you?

MR. SIMMONS. The idea was to see how near the demands they have asked for could be complied with without serious injury to the scenic beauty.

THE CHAIRMAN. A moment ago your question was "without material injury," and then another time it has been proposed "without injury." Now, all those three have quite a different shade of meaning. Which would you prefer it to be?

MR. SIMMONS. Without material injury. How much could be withdrawn by those three companies without material injury to the Falls. The point I want to get at—each of these three companies have asked for a certain quantity of water before your committee, and I would

like Mr. Brackenridge, as an expert, to answer to what extent their wants could be supplied without material injury to the Falls.

The CHAIRMAN. I thought first of asking in the aggregate and then each separately. What would you say the amount was, in the aggregate, they could withdraw without material injury to the Falls?

Mr. BRACKENRIDGE. The two companies now in operation, together with the Irrigation Company?

The CHAIRMAN. That is it.

Mr. BRACKENRIDGE. I have to qualify my answer to that question, for the reason that the irrigation company's plan, as I understand it, as it has been presented to me, contemplates restoring to the American Falls the full amount of water which would be diverted, and if their plan is carried out and we consider that in my reply to your question then my answer will be that there will be no injurious effect to the scenic beauty of the Falls on the American side.

The CHAIRMAN. By how much withdrawal?

Mr. BRACKENRIDGE. By 40,000 feet a second, which they can easily restore if they carry out their plan as contemplated.

The CHAIRMAN. That is the aggregate of the three—you mean the sum total of the three—40,000?

Mr. BRACKENRIDGE. No; the amount withdrawn, 40,000. But I suppose that is about the quantity those three companies will use; but they will restore to the American Falls, according to their plan, the amount that is diverted, no matter what that quantity may be, within reason, forty or fifty thousand cubic feet a second.

The CHAIRMAN. That is, you refer to that shaving off a place about 500 by 700 feet in area?

Mr. BRACKENRIDGE. Yes; you asked Mr. Cary if we had any right to divert water from the river which might be drawn from the Canadian side. Now, as a matter of fact, there is a great deal of water now flowing from the American side to the Canadian side of Goat Island, and you may have noticed that at the head of Goat Island there is almost as much water going toward the Canadian side as going down the American rapids, and this irrigation company proposes to remove that reef and check that diversion to the Canadian side; possibly bring water from the Canadian side; but if they merely check the flow of water from the American side to the Canadian side it will very materially increase the flow over the American Falls.

The CHAIRMAN. We have gone into that question quite extendedly.

Mr. BRACKENRIDGE. I can not answer your question if you bring them into consideration, and I have to consider their plan as a whole; then I must say to you that I can not see that the flow of the water over the American Falls would be impaired at all.

The CHAIRMAN. This is somewhat of a legal question. Suppose there are two proprietors that own lands on two sides of a stream. They come together and fix the boundary out in the stream between the two sides. There are obstacles on both sides scattered all through. Is it not a principle that a person is entitled to the unobstructed flow as it flows by nature opposite his premises? Could one proprietor go in and take out a reef which would, we will say, double or add 50 per cent to what would flow to his side? I do not ask that as giving any opinion of my own, but what is your opinion about that?

Mr. BRACKENRIDGE. I have a decided opinion on that point. No water can legally be diverted from a stream to the injury of parties

using the water below, but if they so improve the stream that they give the owners below an equivalent, I think that that does not hold good.

The CHAIRMAN. In this case would it be giving the proprietors below an equivalent? Would not it be taking it absolutely from the other side? That would be the object, to take it from the other side, would it not?

Mr. BRACKENRIDGE. That is a close question; whether we are taking it from the other side or preventing it going from this side. We do not divert it, but we restore it.

The CHAIRMAN. It has been flowing, however, in the shape in which it is now flowing from time immemorial, so far as you know?

Mr. BRACKENRIDGE. It is time we stopped it, if it has.

The CHAIRMAN. What effect would this diversion here at Goat Island or above Port Day have on the velocity of the current below the point of diversion? Suppose you were to divert say 27,000 cubic feet at Port Day, what effect would that have on the velocity of the current between Port Day, the point of diversion, and the Falls—say first the Falls on the American side?

Mr. BRACKENRIDGE. It would have no material effect on the velocity.

The CHAIRMAN. That would be determined by the descent?

Mr. BRACKENRIDGE. I mean by the slope and the bed of the river.

The CHAIRMAN. And whatever quantity goes by, whether diminished or not, would go with the same velocity?

Mr. BRACKENRIDGE. Well, I won't say the same, but with practically the same. Theoretically, not exactly the same, because the frictional resistance is more in proportion to the volume, but for all practical purposes it would be exactly the same velocity, because the bed of the river is not changed in its slope.

The CHAIRMAN. So the diversion would not be an appreciable factor in determining the velocity below?

Mr. BRACKENRIDGE. No, sir.

The CHAIRMAN. Were there some questions?

Mr. SIMMONS. I think not.

Mr. ALEXANDER. He has not answered all the questions he wanted. You have got the aggregate.

By the CHAIRMAN (to Mr. Brackenridge):

Q. Now, what could each of them withdraw?—A. I do not see that it makes any difference what each individual one withdraws if we have the total of the three, does it?

Q. It would make no difference.—A. It would make no difference which one diverts it. If they combined to take an amount of forty or fifty thousand cubic feet, it makes no difference so far as the effect on the Falls is concerned, whether it is taken by one party or three.

Q. Do the different places at which they propose to divert, including the General Electric Company up at Cayuga Island, make any difference?—A. So long as it is above the Falls it makes no difference.

Q. You have said the proportion going on the American side of Goat Island is approximately one to eight that going on the other side?—A. Yes, sir.

Q. Suppose this rock should be cleared out, this reef shaved off, what would then be the proportion going on the American side and what on the other side?—A. It would depend entirely upon the extent of the removal of this rock.

Q. Suppose you took off 500 by 700 feet?—A. That is a hard proposition.

Q. That is about the size of it, is it not?—A. It depends entirely upon the extent to which the rock is removed.

Q. That is, the depth?—A. Yes.

Q. Suppose it were taken down to the depth of the river behind and ahead of it; put in shape just as if the rock never was there?—A. I can not use any terms of cubic feet per second, but it would increase the volume of flow over the Falls many times what it is at present. There is no question about that, and you could carry it to an extreme where it would take half the flow of the whole river.

Q. You could not take it inside of Goat Island?—A. If you made an excavation deep enough.

Q. It would hardly be possible to do that, would it, in that current?—A. It would not take so tremendous a channel to discharge 222,000 cubic feet a second.

Q. I think that is hardly possible. You say it is not probable. You say it is possible to so deepen it that you could carry half the flow between the American side and Goat Island?—A. I say that would be possible. It would not be reasonable or practical to do that.

Q. To take off this reef up there at Grass Island, how much would that increase the proportion going on the American side—that is, inside of Goat Island?—A. Above or below Grass Island, or both?

Q. Right at Grass Island, is not there a reef there about 500 by 700 feet—that is the way it has been stated to us at Washington?—A. It would materially increase the flow on that side. I am not prepared to say how much.

Q. Would it double it?—A. Probably double it.

Q. That would be the best estimate, about double it?—A. Yes. I have understood, as the case was presented to me, that they proposed to go further than that and come down below Grass Island and make further excavations there.

The CHAIRMAN. Of course we have taken into account both sides here in our consideration of this subject, not merely the American Falls, but the other side, but this is interesting, however, and important too, what you have been giving. I believe that is all.

Mr. BRACKENRIDGE. May I make a statement? I think, from the questions that you have put to me, you have the impression that I have an interest or am connected with these power companies here.

The CHAIRMAN. No; not a bit.

Mr. BRACKENRIDGE. I assure you I have absolutely no interest in any of these power companies; no connection whatever with them, financial or otherwise. I came here at the request of the Board of Trade of Niagara Falls, as a citizen, to give you my best judgment on these questions, and this plan of the irrigation company, which you have referred to as the General Electric Company, has only been brought to my attention within the last two days, and it has occurred to me that in that lies the only solution of this question of preserving both the flow over the American Falls and the utilization of the power at Niagara Falls, which we all want, and, as I say, I am entirely disinterested and am speaking only for what I believe to be the good of the public here and in fact of the whole community.

The CHAIRMAN. Of course you will realize, and others that have

been questioned, that the questions we have asked are direct. We want to get at the facts.

Mr. BRACKENRIDGE. I thought you had the impression that I was on the power side of it, which I wish to disabuse your mind of.

The CHAIRMAN. Not a bit.

The Chairman then questioned Mr. Brackenridge further, as follows:

Q. Suppose you were to take out the 27,000 feet claimed by the two companies there at Port Day, could you do that without seriously lowering the level of the American Falls unless you deepen this channel in the method proposed there?—A. Twenty-seven thousand feet?

Q. Yes.—A. That 27,000 feet is made up from adding the power company and the hydraulic company?

Q. Yes; the Schoellkopf Company and the Niagara Falls Power Company.—A. I think so. I think that there would be no necessity for deepening it because it is below the reef which they propose to remove.

Q. That is, you think that quantity can be taken without materially injuring the American Falls?—A. I think so; yes, sir.

Q. Well, materially, I suppose you mean to an extent that would be noticeable?—A. Yes. A little more than that. Not merely so that an expert engineer could see it, but so that the general public would notice that that fall was less than it was. I do not think they would; no, sir, not with the diversion of 27,000 cubic feet.

By Mr. ALEXANDER:

Q. And of that 27,000 cubic feet, how much of it would come from the American side that goes over the American Fall?—A. How much of it would come from the American side?

By the CHAIRMAN:

Q. And how much would be diverted from that which otherwise would go over the Horseshoe Fall?—A. I am afraid I could not answer that question. I could not tell what the proportion would be.

By Mr. ALEXANDER:

Q. You have answered it practically in your examination. Didn't you say about 25 per cent?—A. Well, I qualified that answer by saying that was a rough guess. I would not want to commit myself to any exact amount. Probably 25 per cent would be as near a guess as anyone could make.

The CHAIRMAN. I will say to you that the majority of the estimates have not made it as much as 25 per cent.

Mr. ALEXANDER. They have been smaller; considerably.

The CHAIRMAN. The estimate that has been most commonly given is $16\frac{2}{3}$ per cent.

Mr. BRACKENRIDGE. Yes, sir; that is quite possible. I think that is just a matter of judgment. It is not a matter that is capable of exact determination. It is impossible to do it.

Mr. ALEXANDER. What would be your best judgment on that; of the 27,000 feet desired by the two companies on the American side, what proportion of that would be taken from the American side going over the American Fall?

Mr. BRACKENRIDGE. Well, I do not think it would be more than 25 per cent.

The CHAIRMAN. You place that as your maximum?

Mr. BRACKENRIDGE. Yes, sir.

Mr. ALEXANDER. And that, you say, would not be visible to the eye of the ordinary observer—its influence upon the crest of the Falls?

Mr. BRACKENRIDGE. I think not; no, sir. It is a very complex problem, because the minute that you begin to lower the water on the American side just that minute you begin to draw water from some other point. As soon as you lower a surface in water at one point water comes from another to restore the level.

The CHAIRMAN. On the principle that water seeks its level?

Mr. BRACKENRIDGE. Exactly. So that it varies with the different conditions on the river, and I do not see how that question can be answered accurately.

Mr. ALEXANDER. How deep do you say it is 2 feet out from Prospect Point, right on the crest of the Falls?

Mr. BRACKENRIDGE. As we looked at it to-day, I should think about 10 or 12 inches—10 inches probably.

Mr. ALEXANDER. And out 7 feet, as we looked at it to-day?

Mr. BRACKENRIDGE. About the same.

Mr. ALEXANDER. Where does the green water begin—how far out?

Mr. BRACKENRIDGE. Thirty or 40 feet from the shore, probably.

Mr. ALEXANDER. How deep is it there?

Mr. BRACKENRIDGE. I have been trying to hedge that question. I think that it gets at that point about 2 feet deep, and I think there are points from there on to the middle of the Falls where it is 3 feet deep, and probably in some places over 3 feet. Now, the ledge where that log was suspended which you referred to I saw to-day; it was at a very shallow point on the brink of the Falls. If the log had come down in the middle of the channel at the deeper point it would have gone right over the Falls, but it happened to land where the water was very shallow.

Mr. ALEXANDER. You know where the Avery Rock is?

Mr. BRACKENRIDGE. No, I do not. I know where the log was that you referred to, but I do not know where the Avery Rock is.

Mr. ALEXANDER. Called the Avery Rock because that man by the name of Avery got caught there.

Mr. BRACKENRIDGE. I do not know it.

The CHAIRMAN. Suppose half the flow over the American Falls should be withdrawn, what proportion of the depth flowing over the Falls would be taken away; how much would it lower the average depth going over the Falls. To aid you a little in answering that question, suppose the average depth were 2 feet; I believe that is what you stated?

Mr. BRACKENRIDGE. Yes.

The CHAIRMAN. Suppose you were to take away half the water flowing over the American Falls, what portion of that depth of 2 feet would be taken away?

Mr. BRACKENRIDGE. I do not know, sir. I could not answer your question, because I have no way that I know of by which it can be determined.

The CHAIRMAN. Is it not true of this subject of questions arising in regard to the Falls that there is an element of conjecture that is unusual in engineering problems?

Mr. BRACKENRIDGE. Yes, sir.

The CHAIRMAN. You can only tell by trial what effect it will have?

Mr. BRACKENRIDGE. Yes, sir; largely.

The CHAIRMAN. I believe that is all.

Mr. ALEXANDER. Then I understand that the two companies in existence could take the 27,000 feet desired and not materially injure the fall? That is your answer?

Mr. BRACKENRIDGE. That is my opinion; that they would not materially injure the Falls; yes, sir.

Mr. ALEXANDER. And that the irrigation company could take this 17,900 feet by turning it back into the American Falls; it would not injure the Falls materially?

Mr. BRACKENRIDGE. I believe they could not only return to the American Falls their 17,900 feet, but they could return to the fall all water that is diverted by the other two companies at very little expense, so that the fall would be entirely restored to its condition before any diversion whatever took place. Now, if we go further, the natural question is, What effect will that have upon the Canadian Falls? and the answer is that the depth of the Canadian Falls is about 14 feet to 2 or 3 feet on the American side; that they can well afford to lose a few inches from the 14 feet, which will never be noticed on the Canadian side, so that it can be quite properly taken from the Canadian side and restored to the American side.

Mr. ALEXANDER. Then, in your opinion, allowing the irrigation company to have this 17,900 feet on condition it makes the changes according to this plan would be beneficial to the American side and ought to be allowed?

Mr. BRACKENRIDGE. If they will make the changes to restore that quantity of water, which in my opinion is entirely practicable, it is an advantage to allow them to proceed with their work, even to the extent of 17,900 cubic feet a second, because we thus accomplish what we all want, which is the preservation of the Falls, which is almost as necessary to the city of Niagara Falls as the development of power. There are some 800,000 people come to Niagara Falls every year to see the Falls, and I think it is no exaggeration to say that 75 per cent of the population of this city are dependent directly or indirectly upon this seven or eight hundred thousand people who come here for that purpose, and there is, therefore, nobody in the United States who is more deeply interested in the preservation of the Falls than the people who live right here in this city, and I am speaking for the people, and the opinion that I have given you is my very best judgment, without bias from any side or any source.

I firmly believe that if these people are permitted to do the work on the plan which they have outlined that all that I have predicted will result. It can not be otherwise. There is a natural barrier which is covered with ice in the winter, which forms a dam which practically shuts the water off from the American Fall. We walked from the mainland over to Goat Island over the American Fall by the water being deflected by ice forming on these shallow points above the fall. All that water goes over to the Canadian side, and if we remove that obstruction the water will come back to the American side where it belongs. It is not a very profound engineering problem. Anyone can go out there and see the conditions and be convinced that that can very easily be accomplished.

Mr. ALEXANDER. At what expense to the company undertaking it?

Mr. BRACKENRIDGE. I would not want to answer that question,

because I do not know how many cubic yards of rock will have to be removed, but that rock can be removed for about \$1 a yard or \$1.50 a yard where it is in deep water, and there are not very many yards to be removed. We are letting work on the barge canal for 46½ cents a yard where there is very little water.

Mr. ALEXANDER. How long have you been a resident of Niagara Falls?

Mr. BRACKENRIDGE. I came here in 1891 and have been here until a year ago.

Mr. ALEXANDER. And you have been a student of the Falls here, being connected with the power company?

Mr. BRACKENRIDGE. Yes, sir; a very close student of the whole situation—the effect on the power company and the effect on the Falls and the general trend of the river—and we conducted experiments over a period of five or six years to determine the direction of the currents, and we even considered the removal of these obstructions that are now under discussion as a means of getting rid of the ice in the winter, so that it would not form on these reefs and interfere with the flow to the power houses now in existence.

Mr. ALEXANDER. And you are very sure that the carrying out of the irrigation company's plans, as you understand them, would not and could not interfere with the level of the river or of the lake?

Mr. BRACKENRIDGE. I know it. It is not possible to. It could not possibly have any effect on the level of Lake Erie or on the river between their intake and Lake Erie. As I explained before, you can not make more water come through the river than is naturally flowing there. The only effect is that it diverts that water from the Falls, and as they propose—as I understand their plan, they propose to restore all of that water that they take, an equivalent to what they take out, and at very trifling expense they can go further and restore water equivalent to what is being taken by the other companies, even if they take their full limit. There is no question about it at all.

Mr. BURTON. I suppose you have not considered the attitude of the Canadian Commission. They claim the right to divert 10,000 cubic feet more than is diverted on this side as their minimum demand. Now, if these three companies should divert the quantity named, it would mean 44,000 cubic feet—slightly in excess of that—on this side, and 54,000 on the other. That would be 98,000 cubic feet, which is something over about 44 per cent of the total quantity in the river. Now, would you say that 44 per cent could be diverted without material impairment of the beauty of the Falls?

Mr. BRACKENRIDGE. Forty-four per cent of the whole flow of the river?

The CHAIRMAN. Yes.

Mr. BRACKENRIDGE. I have always considered that about 40 per cent was about the amount that could be diverted without really seriously injuring the appearance of the Falls.

The CHAIRMAN. On what do you base that?

Mr. BRACKENRIDGE. Well, if I have to give a reason for it, we come right back to a mathematical reason, which I am not prepared to give. It is purely a matter of judgment that I have viewed the Falls from time to time and under different conditions of flow during a period of fifteen years, and with half the amount of the water going over the Falls—I mean half below the high-water flow—the rock is not left

bare; it is all covered, and the effect from a distance—it is just as effective from a distance as though there were twice the volume going over. Just how much that may be lowered without having an injurious effect on the appearance of the Falls I am not prepared to say. That may be a matter of judgment and different view points.

The CHAIRMAN. That is, you think the ordinary visitor or tourist sees the Falls at something of a distance; he does not come near to them and make a critical study?

Mr. BRACKENRIDGE. No; he does not analyze them closely and measure the water going over.

Mr. ALEXANDER. Would it make any difference in the volume of the sound?

Mr. BRACKENRIDGE. No, I do not think so; not any material difference.

The CHAIRMAN. Now, there is another company, Mr. Brackenridge, the Niagara, Lockport and Ontario; they claim the right to divert 10,000 cubic feet per second on this side. Where is their proposed intake?

Mr. BRACKENRIDGE. That is away up the river—Tonawanda, I believe.

The CHAIRMAN. What would you say to that, in addition to the 40,000 feet, making 54,000, and 64,000 on the other side, according to their claim, making 118,000 cubic feet, which is considerably over half? We are reaching over 50 per cent now.

Mr. BRACKENRIDGE. Well, if they are going to take 10,000 cubic feet of water and they are entitled to it, you had better take it away from somebody else and give it to them. You have got 40 per cent out now.

The CHAIRMAN. That is, there is such a thing as having enough?

Mr. BRACKENRIDGE. Yes; I think we have gone about the limit.

Mr. ALEXANDER. Mr. Brackenridge, during the time you have been engineer here and a resident of Niagara Falls, you have considered this question as to the amount of water that would injure materially the Falls; you have had that in mind?

Mr. BRACKENRIDGE. Yes, sir.

Mr. ALEXANDER. Been a problem constantly before you?

Mr. BRACKENRIDGE. Yes, sir; it has been a question which has always been considered by me. It has been a question which has always been before the public ever since I came here and has always been prominent in the minds of people who have employed me.

Mr. ALEXANDER. Was it prominently before you during the constitutional convention of 1894?

Mr. BRACKENRIDGE. Yes, sir; I was here then.

Mr. ALEXANDER. And they sent a committee over here to make inquiry?

Mr. BRACKENRIDGE. Yes, sir.

Mr. ALEXANDER. Were you examined by that committee?

Mr. BRACKENRIDGE. No; I was not, but I was here at the time. I think we have given the subject as thorough a study as anybody. We have been here long enough. I was employed by the first power company, that is the Niagara Falls Power Company, which began electrical development; the only one that was here before was the Hydraulic Power and Manufacturing Company.

Mr. ALEXANDER. The Schoellkopf Company?

Mr. BRACKENRIDGE. Yes. We worked away on it for fifteen years.

Mr. CARY. The depth on the Canadian side being so much greater than that on the American side, if the water is restored to this side by the irrigation company, as proposed, and the Canadian government then allowed the diversion that they claim, as Judge Burton stated, would not that still leave the Canadian Falls much deeper than the American Falls as at present—the flow over it?

Mr. BRACKENRIDGE. Certainly.

Mr. CARY. And, therefore, as that depth over the Canadian Falls is so great at present that the eye can not measure it at all, the beauty of those Falls would remain unimpaired?

Mr. BRACKENRIDGE. Most of the fall, Mr. Cary. There are shallow places near the edge; there are places near Goat Island would probably be entirely bare.

Mr. ALEXANDER. Did you see the Falls to-day, Mr. Brackenridge?

Mr. BRACKENRIDGE. I did.

Mr. ALEXANDER. How does it compare to-day with other days?

Mr. BRACKENRIDGE. The water was very low indeed.

Mr. ALEXANDER. Those sides—the Goat Island side, on the Horse-shoe—seemed to be well filled with water to-day, clear up almost to old Terrapin Tower. Did you observe that?

Mr. BRACKENRIDGE. Yes.

Mr. ALEXANDER. It occurred to me I had never seen it running quite as full.

Mr. BRACKENRIDGE. The water was not high to-day. It was much higher yesterday than it was to-day. Well, you saw the gauge up there at Port Day. I think that gauge registered about 560. Well, the water in the Niagara River has been up to 564 or 565.

The CHAIRMAN. Would not that increased flow on the American side, caused by the removal of that reef, cause a part of the water to flow around on the farther side of Goat Island, where the fall is shallowest there. Would it all go inside of Goat Island?

Mr. BRACKENRIDGE. No, sir; it would not unless the reef at that point were removed—the reef just above that point—and that was why I mentioned the removal of the reef below Grass Island as well as the one above Grass Island.

The CHAIRMAN. If both were removed, it would cause a portion of it to go on the further side of Goat Island?

Mr. BRACKENRIDGE. It would all come on this side. That was the object in removing the lower reef.

The CHAIRMAN. That is, in your judgment, it would all come on this side of Goat Island?

Mr. BRACKENRIDGE. Yes, sir.

The CHAIRMAN. Anything further, Mr. Alexander?

Mr. ALEXANDER. Nothing further. The examination has been very interesting, Mr. Brackenridge, indeed.

The CHAIRMAN. Is there anything further, Mr. Mayor.

Mayor CUTLER. There are several prominent manufacturers here, notably Mr. Acheson, of the Acheson Graphite Company, and Mr. Hall, of the Pittsburgh Reduction Company, who can tell you how they are involved in the provisions of this bill. As a layman, will you allow me to ask one question? You have stated two or three times that the Canadians charge us with 10,000 cubic feet per second diverted at Chicago. Do not they credit you anything for the water they take through the Welland Canal for power purposes?

The CHAIRMAN. That is said to be comparatively a small quantity.

Mayor CUTLER. They are developing a good deal of power over there.

The CHAIRMAN. That would be included in the amount they would give as their diversion. I think the estimate of 1,800 cubic feet has been given on that. That would be included, however.

Mr. EDWARD G. ACHESON. I have reduced what I have to say to writing, and it will take about four minutes.

STATEMENT OF MR. EDWARD G. ACHESON, OF THE INTERNATIONAL ACHESON GRAPHITE COMPANY.

Mr. ACHESON. As a resident of Niagara Falls since 1901, and a daily visitor there previous to that back to 1895, I can assure you that there has been no appreciable diminution in the Falls as the results of the existing power development.

I have ventured to come before you and call your attention to what I have to say on the grounds of my being a consumer of electrical power as developed at Niagara Falls, I having created two industries, which are equipped in the aggregate for 8,000 electrical horsepower. The first industry started in 1895 was that of the Carborundum Company, the second started in 1899, that of the International Acheson Graphite Company.

The above industries, which I represent, may not be properly spoken of as typical of those which have taken advantage of the Niagara Falls' development, that is to say, in all respects, they being rather unique; but they answer well to illustrate the tremendous advantages that have accrued to new industries as the result of the utilization of a small part of the Falls of Niagara. These two enterprises, which I represent, are even more than national in character—their products are of international value.

It is possible that an opinion prevails among the mass of the people of the United States that the utilization of Niagara Falls has been of a selfish, local character. Of course, it must be admitted that no enterprise of any magnitude would be undertaken without the possibility of profits accruing to the projectors, but in carborundum and graphite, the plants I have established, the profits derived by the parties interested in the plants are, I believe, much smaller than those derived by hundreds of manufacturing establishments scattered throughout the United States and Europe.

Carborundum has been admitted, even by its competitors, the emery interests, to have been a great educator to the American manufacturers in the matter of abrasives, and my belief is that it has been, and now is, of inestimable value to the American manufacturers. Graphite, as made by my methods, has also proved of extraordinary value to many American manufacturers. With your permission, I will quote from a paper read by Prof. C. F. Burgess, of the University of Wisconsin, before the American Electro-chemical Society on September 20, 1905. This paper was devoted to a review of the electro-chemical industries of the United States in 1904. After commenting at some length on the products of the International Acheson Graphite Company, he says:

This industry, while being an important electro-chemical one in itself, has been found to be of great assistance in promoting industrial electro-chemical development by furnishing for electrode purposes a material of such excellence that the success of several electro-chemical industries may be said to depend thereon.

This is an unsolicited comment on the value of the productions of this company to numerous manufacturing interests of the United States. During the year 1904 the graphite company manufactured 4,500,000 pounds of graphite, and this material, as stated by Professor Burgess, was in many cases necessary to the existence of other industries.

You may say, while admitting the value of the products manufactured at Niagara Falls, that they might be made in other localities, and not at the expense of the reduction of the cataract. In 1894 the Carborundum Company had its home at Monongahela City, Pa., on the Monongahela River, in the very heart of the bituminous-coal territory of the United States. They were operating a steam-generating electrical plant of 134 horsepower. The cost of the product was so high that but one-half of it was sold. The company being comparatively poor, it was out of the question to consider the construction of a steam-generating one of one or more thousand horsepower, its resources being required for the development of the details of the manufacture of its own product.

At this time the completion of the Niagara Falls Power Company was approaching and I thought it wise to take advantage of the large capital invested in the power plants of Niagara Falls, and did so. In the year 1904 the carborundum company in its new house at Niagara Falls was equipped with a power capacity of 5,000 electrical horsepower, and manufactured over 7,000,000 pounds of carborundum during the year.

The development of carborundum and graphite, as manufactured by my methods, I believe, would have been practically impossible and certainly would have been immensely retarded had it not been for the utilization of the Falls of Niagara.

As guardians of the interests of the people it is of course pertinent for you to inquire the value of the interests jeopardized, if such be the case, by the proposed bill before Congress. The capitalization of the carborundum company and the International Acheson Graphite Company is together \$1,100,000. As I have tried to show in the foregoing, any injury done to these interests, even to their complete extinction, would be felt detrimentally by many others throughout the country to an even greater extent.

The development of power at Niagara Falls I consider of immense importance to the industries of the United States, more particularly as a means of encouraging the development of new ones. It becomes in a way a nursery, and any acts interfering with or decreasing the advantages possible of attainment are certainly not to be encouraged and should not be tolerated. The advantages I have obtained may be, in a manner, duplicated next year, and again the following year by others.

THE CHAIRMAN. You are using 5,000 horsepower in this carborundum company?

MR. ACHESON. Yes; and 3,000 in the graphite.

THE CHAIRMAN. How much per horsepower do you pay, or is that a secret contract?

MR. ACHESON. I guess it is commonly known. They start with \$20 per year per horsepower for 1,000 horsepower, and that is diminished as you use it at the rate of 50 cents per horsepower up to an \$18 limit.

THE CHAIRMAN. Eighteen dollars is the minimum?

Mr. ACHESON. Yes.

The CHAIRMAN. Down there by the Monongahela River, how much would the power cost per horsepower?

Mr. ACHESON. Well, with the little plant that I had—of course, 134 horsepower is rather small—it was costing from \$60 to \$70.

The CHAIRMAN. Suppose you had had seven or eight thousand horsepower down there; what would it cost?

Mr. ACHESON. Probably \$35, or \$40, probably.

The CHAIRMAN. So that the cost of the power here is approximately half what it would be there?

Mr. ACHESON. Yes; but to me the great advantage I spoke of was the fact of being able to call upon 1,000 horsepower; to pay monthly for the power without investment of the capital.

The CHAIRMAN. You can change the amount at will?

Mr. ACHESON. Yes, sir.

The CHAIRMAN. How much more horsepower do you contemplate using in the next year or two?

Mr. ACHESON. That would be extremely difficult to say. We are hoping to use a great deal.

The CHAIRMAN. Twice as much?

Mr. ACHESON. Possibly not; within two or three years.

The CHAIRMAN. Do you know how much horsepower is used here at the Falls that is derived from the water power?

Mr. ACHESON. No; I have no exact figures on that now.

Mr. FRANCHOT. Fifty-eight thousand, without going into very small amounts.

The CHAIRMAN. And probably it would be more than that?

Mr. FRANCHOT. Yes.

The CHAIRMAN. I believe that is all, Mr. Acheson.

STATEMENT OF MR. ARTHUR V. DAVIS, GENERAL MANAGER OF THE PITTSBURG REDUCTION COMPANY.

Mr. DAVIS. The Pittsburg Reduction Company is a company with a capitalization of \$3,600,000. Our business is the manufacture of aluminum by an electric smelting process, aluminum being reduced from its ore. We are the only manufacturers of aluminum in the United States and we have a total investment in our business of about \$9,000,000. The electric smelting portion of our business, which is principally done at Niagara Falls, constitutes only the backbone of our enterprise, although we have large investments, as you might say, prior to Niagara Falls and subsequent to Niagara Falls; that is to say, we have large investments in ore lands and a large investment in a factory for the purification of the ore, and also investments in the fabrication of the aluminum after it is made—rolling it into sheet, fabricating it into finished articles; but, of course, all of these investments depend entirely upon the smelting of the aluminum from the purified ore, which, as I say, is done principally at Niagara Falls, so that our entire industry is dependent upon our smelting plants here, or practically so.

We have one other plant, but nothing as large as this plant here. We use now about 20,000 horsepower. There has been a great shortage of aluminum in the market this last year, and we have aimed to supply that shortage by the building of another plant, for which we have already contracted. We are building a plant of approximately

36,000 horsepower and have contracted to take 27,000 horsepower, but expect, of course, to take the entire 36,000, which is the capacity of the plant, additional to what we have here already. Those contracts have already been placed for several months, and it would be impossible for us to withdraw from those contracts, as probably the buildings, machinery, etc., are now ready for shipment, in whole or in part, to Niagara Falls. The total investment which will be made in this new addition will be about a million dollars. We employ about 2,500 to 2,600 men in our industry as a whole, and all of these men are, of course, dependent upon the smelting process.

In addition to that, we are the only manufacturers of aluminum in the United States, and there are dependent upon us a great many other industries. Without ever having figured it up, I should say there were probably fifty or a hundred companies who use aluminum exclusively, make nothing else but aluminum goods. Then there are thousands of companies who use aluminum to a certain extent. In the manufacture of armor plate and in the manufacture of many grades of steel, aluminum is a necessary ingredient; and so it is in a great many others—manufacture of automobiles, cooking utensils, etc. Many companies are dependent to a certain extent upon our continuing the manufacture of aluminum and upon our being able to meet not only the present demand but the constantly growing demand in the United States, and it is needless to say that to deprive us of our opportunity to enlarge here and possibly to deprive us of our opportunity to manufacture here at all, would be a disaster to the Pittsburg Reduction Company, the extent of which can be measured by the magnitude of our enterprise and also by the needs of the country for our product.

I might say further along the line of the questions that you asked Mr. Acheson that we did manufacture aluminum by steam power in Pittsburg, where, perhaps, electricity can be produced by steam as cheaply as any place in the world. We kept records of our cost, and it ran about \$40 per horsepower; but it would be impossible for us to manufacture aluminum and sell it at a price at which the market can consume it if we are obliged to resort again to steam power. When we came here to Niagara Falls the price of aluminum was 60 cents—it might have been 55—but it was in that vicinity, and due to the opportunity which we have enjoyed here to get the cheap power and to enlarge our business we are now selling aluminum at considerably less than half that price, which puts aluminum into a class which is comparable with copper and with zinc and other metals of that character; but, of course, if we should be obliged to go back again we would be entirely removed from that class, and the uses of aluminum would then be restricted as they were then to the comparatively few uses where the inherent qualities of aluminum render it necessary—lightness, or its peculiar chemical properties, or otherwise.

The CHAIRMAN. The advantages of aluminum, I suppose, are its lightness and its tensile strength?

Mr. DAVIS. Yes; and particularly its noncorrosive quality in the steel manufacture, its chemical qualities.

The CHAIRMAN. What chemical quality specially?

Mr. DAVIS. It has the quality of absorbing the oxygen, which is the cause of the blowholes in the steel, thereby rendering the steel solid. I think it is safe to say that the cast-steel industry, which is an industry which has sprung up in the last five or ten years, would be ruined

without the use of aluminum, because that has been the great difficulty in steel castings—to get them solid.

The CHAIRMAN. The main use of aluminum with steel, then, is in steel castings?

Mr. DAVIS. No, sir. The production of open-hearth steel is so much greater in tonnage that even though the percentage of aluminum used in it is so much less, the total consumption of aluminum in open-hearth steel is considerably greater than in the steel castings.

The CHAIRMAN. From what company do you obtain power?

Mr. DAVIS. We obtain power from the Niagara Falls Power Company and also from the Niagara Falls Hydraulic Company, and this new enlargement that we speak of is to be from the Niagara Fall Hydraulic Company.

The CHAIRMAN. How many horsepower are you using now?

Mr. DAVIS. We are using now about 20,000.

The CHAIRMAN. Singularly, in this report made by the International Commission, it places the quantity used by you at only 8,000.

Mr. DAVIS. That is incorrect. I may be wrong within a few hundreds.

Mr. HALL, of the Pittsburg Reduction Company. We are using actually 6,000 from the Niagara Falls Power Company at one plant and 15,000 or 16,000 from the Hydraulic company at our other plant.

The CHAIRMAN. Does your company go under any other name than the Pittsburg Reduction Company?

Mr. HALL. No, sir.

The CHAIRMAN. That would simply include what is used at that one plant and not the other?

Mr. HALL. I think they must have assumed that our plant up here was our only plant.

STATEMENT OF MR. S. P. FRANCHOT, OF THE NATIONAL ELECTROLYTIC COMPANY.

Mr. FRANCHOT. I desire to file a statement of the average of the wind: For the last five years, westerly winds, 69 per cent; calm, 3 per cent; easterly winds, 28 per cent.

The CHAIRMAN. Where is this obtained from?

Mr. FRANCHOT. The Weather Bureau?

Mayor CUTLER. Mr. Price, the manager of the carbide works, a very large manufacturing plant, would like a few minutes.

STATEMENT OF MR. E. F. PRICE, GENERAL MANAGER OF THE UNION CARBIDE COMPANY.

The CHAIRMAN. I see by this statement you use 17,000 horsepower?

Mr. PRICE. I prepared no statement in regard to our business, but we use now 15,000 horsepower at these works here.

The CHAIRMAN. From what company do you obtain that?

Mr. PRICE. From the Niagara Falls Power Company. Under our contracts with that company we have the call on 25,000 maximum, and our works have been constructed with the view to utilizing the full 25,000. We have another large works at Sault Ste. Marie. We manufacture calcium carbide, from which acetylene gas is generated, and we maintain in the United States some 40 warehouses and handle

our product throughout the whole country. It is used very largely in lighting individual plants and small towns and villages. We have some 250 towns and villages lighted exclusively with acetylene and with a good many of those we have long-term contracts.

The CHAIRMAN. The making of acetylene gas is the principal use of your product?

Mr. PRICE. Yes, sir. As has already been said, there are a lot of industries dependent upon our industry. There are a lot of manufacturers of acetylene appliances. There are several millions invested in that business alone, and they are scattered throughout the country. The Union Carbide Company has \$8,000,000 of capitalization.

The CHAIRMAN. How long have your works been established here?

Mr. PRICE. The Union Carbide Company was formed in 1898. The carbide business started two or three years before on an experimental basis. We spent a lot of money in developing the business and finally got it on a commercial basis. A very large item of cost in the manufacture of calcium carbide is power, and from an economical standpoint water power is the only thing we can use. If we used steam power we could not compete with other forms of illumination that we have to compete with.

The CHAIRMAN. Is yours the only concern in the country making it?

Mr. PRICE. Yes, sir; we are the exclusive manufacturers.

The CHAIRMAN. Were you located at any other place before here?

Mr. PRICE. This business started in a very small way in North Carolina, but it has grown from nothing to its present size.

The CHAIRMAN. Is that all you have to say?

Mr. PRICE. That is all, except we feel our business would be ruined if we could not get water power. It is not a business that you could operate with small water power. In a plant like ours it is necessary to have power in large blocks to manufacture economically.

The CHAIRMAN. One great advantage of the power you can obtain here is the flexibility—that is, you can obtain more or less?

Mr. PRICE. You can gradually extend your plants.

The CHAIRMAN. I believe that is all.

STATEMENT OF ALFRED W. GRAY, ESQ., COUNSEL OF THE WOODFORD ESTATE.

Mr. GRAY. I desire to present the claims of the Woodford estate, on behalf of which I appear. I believe the power plant concerning which I speak is the oldest one on the whole frontier. The mills were built back in 1859 at Suspension Bridge, as it was then called—flour mills and gristmills—and the power plant was constructed at the head of the rapids below the Falls. The water is taken at the level of the river, just above the rapids, into a headrace some few rods long, and there dropped 8 or 10 feet, and then wasted through the tailrace into the rapids below, taking the benefit of the fall in the rapids.

The CHAIRMAN. You have a head, then, of only 8 feet?

Mr. GRAY. Eight to 12 feet, I believe, depending somewhat on the condition of the water in the river, and for the last fifty years power has been developed there, up to the time of Mr. Woodford's death, a few months ago, excepting also a time when it was interrupted by the building of the Gorge road. The power was conveyed from this plant to the high bank by cable. This would come within the prohibition

of your bill, and yet the spirit of the bill, of course, aims at protecting the Falls, so I assume we are outside of the spirit and yet within the letter of the bill.

The CHAIRMAN. How much horsepower do you create?

Mr. GRAY. Under the old-fashioned power plant it is approximately 100 horsepower.

The CHAIRMAN. How many cubic feet do you withdraw from the river?

Mr. GRAY. I do not know.

The CHAIRMAN. You have never computed it that way?

Mr. GRAY. No, sir.

The CHAIRMAN. It is only 100 horsepower?

Mr. GRAY. That is all. It is available for operating the mill at the top of the bank, and this estate is the owner of property along the river and their riparian rights are probably considerably in excess of what they are using now.

The CHAIRMAN. Do you contemplate any increase?

Mr. GRAY. Yes. That has been contemplated for some two or three years, and the value of the property at the top of the bank and at the foot of the bank depends almost entirely on the riparian rights there, and if anything should interfere to destroy that power, our rights to take the water there, it would practically be a confiscation of this whole property.

The CHAIRMAN. To what extent are you contemplating increasing the horsepower?

Mr. GRAY. That has been a matter which I do not know very much about as to what extent they do contemplate increasing it. I, in fact, do not know the number of feet it extends along the river at that point, nor what the full fall is that they could obtain there. There were negotiations on taking it at that point and discharging it lower down, which would contemplate developing several thousand horsepower, depending on how far down the river they would go and how much of the benefit of the fall they would take. But whatever might be done in that connection, of course, would not interfere with the scenic beauty of the Falls nor with the scenic beauty of the rapids, because the river at that point is supposed to be very deep, the banks are practically perpendicular, and it is simply lowering your rapids a little bit, but the same spectacle is presented.

The CHAIRMAN. Just what is the point at which you divert the water?

Mr. GRAY. It is at Suspension Bridge—by the two bridges there.

Mr. ALEXANDER. Where do you put it back?

Mr. GRAY. Just below, a few rods; all that was necessary for the running of this mill above.

Mr. ALEXANDER. You put it back where they take the photographs?

Mr. GRAY. Yes; right at that point.

The CHAIRMAN. What is the length of your riparian rights in the river?

Mr. GRAY. My recollection is—I haven't the exact data—that it extends along there some six to eight hundred feet, something like that.

The CHAIRMAN. Do you have any franchises for that from the State?

Mr. GRAY. Not that I know of. I think that the rights we have are those of a riparian owner, because we take it on our property and discharge it on our property, and under a decision of the court of

appeals, where this matter was litigated to a certain extent, our rights were confirmed.

The CHAIRMAN. That is, it was maintained you did not require a franchise from the State?

Mr. GRAY. That question was not, perhaps, directly up in that case. It was up in another case.

The CHAIRMAN. In which they said it was not navigable at the place in question?

Mr. GRAY. Yes; where it was not navigable. There is, I think, a case decided within two years where the court of appeals held practically that proposition.

The CHAIRMAN. That was the case in regard to whether it should be taxed as property or a franchise, is it not?

Mr. GRAY. That is the case.

The CHAIRMAN. I know the case. The basis of the decision apparently was that the stream was not navigable and the State did not own the water in the bed of the stream.

Mr. GRAY. That is the situation at this point, that it is not navigable. I have made a brief memorandum of the facts touching this, which I desire to hand in.

The CHAIRMAN. Have we the cases you have referred to?

Mr. GRAY. That does not refer to any legal cases. That is simply a brief recital of the facts.

The CHAIRMAN. That is all.

Hearing closed.

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Tuesday, May 1, 1906.

The committee met at 11 o'clock a. m., Hon. Theodore E. Burton (chairman) in the chair.

STATEMENT OF FRANK W. STEVENS, ESQ., OF JAMESTOWN, N. Y.

Mr. Chairman, I have been requested to appear before your committee not on the facts or the policy of this question of the bill relative to Niagara Falls, but simply on the question of the jurisdiction and authority of Congress to enact the proposed legislation. It would be equally satisfactory to myself to file later on, in a few days, a brief which will cover all that I can say here.

The CHAIRMAN. We should be glad to have you file the brief, and to proceed now orally. Mr. Stevens.

Mr. STEVENS. The immediate occasion for my addressing you arises from what I have discovered in your printed proceedings, and I beg to take your time for a moment while I read one or two expressions. In the communication from the Secretary of War to the President, which is printed in your proceedings, the letter being dated the 20th of March, I find this language:

The recommendations of the Commission of legislation necessary and desirable to prevent the further depletion of water flowing over the Niagara Falls suggests the question whether such legislation is within the limitations of the legislative power of Congress, when applied to nonnavigable parts of a stream which is within the borders of a State and which is only partly navigable, if the use of the water to be inhibited does not affect navigation in the navigable part of the stream below.

I also find in the communication from the Attorney-General to the Merchants' Association of New York, on page 6 of Senate Report No. 1611, the following language:

In other words, I have not attempted to do more than indicate that without denial of the initial rights and functions of the State there is a great unsettled question here of the nature and scope of the Federal power.

So that we have two of three officers of the Government expressing, after some consideration of the case, some degree of uncertainty as to the scope of the powers of Congress in this matter. In addition to this, I find by consulting your printed record that four gentlemen of high professional standing and personal character at the bar have deliberately placed themselves on record before you on this question, in the language prepared by Mr. Hanson, who says:

Our position is that it is not within the power of Congress to exercise any control of the navigable waters of the United States excepting for the purpose of controlling navigation in the interest of interstate and foreign commerce.

Mr. HUMPHREY. Which four gentlemen do you refer to?

Mr. STEVENS. Franklin D. Locke, who represented the Ontario Power Company, and who is a gentleman of the highest standing at the Buffalo bar; Mr. Hanson, who is the attorney for the Niagara County Irrigation and Water Supply Company, which is the same thing as the General Electric Company; Mr. Whitridge, representing the Niagara Falls Power Company, and Paul D. Cravath, who represented the Niagara, Lockport and Ontario Power Company. All of these gentlemen briefly expressed themselves on this proposition that the sole power in relation to the river Niagara is derived from the power of the General Government over navigable streams in relation to commerce. They also deny that you have any power in case the water is taken from a nonnavigable part of the stream and restored before the navigable part is reached, upon the proposition, I suppose, that such diversion and return of the waters can not by any possibility affect the navigability of the stream and that Congress has no other jurisdiction except over the navigability of the stream.

And it is perfectly fair to say that that position does not in my judgment impugn the proposition that Congress has control over a navigable stream, both in its natural navigable and nonnavigable portions, provided an interference with the nonnavigable portion may, either directly or indirectly, affect the navigable. That question was up in the Rio Grande case, in 174th U. S.

This expression of doubt on the part of the Attorney-General and of the Secretary of War, and the emphatic declarations of the four gentlemen I have named, have led some of the friends of the preservation of Niagara Falls to request me to address you very briefly on the question of whether there is any power in the General Government outside of the question of its being a navigable stream, outside of the powers conferred by the Constitution and the decisions of the courts over such streams.

I suppose there are only properly two ways of addressing you on that question. The first is to briefly and concisely state the proposition, and leave you to work out the illustrations and the various ramifications into which the general doctrine would go; and, second, to make an elaborate legal argument, full of citations of authorities and the like. The second I should hope you would not tolerate at this stage of the discussion, and it will content me fully to express as

briefly and concisely as it may be possible for me those considerations which seem to me decisive, and upon which I venture to say that this question ought to be one of first impression, that the General Government has full and absolute power over the waters of a navigable river.

If it has any powers over that river other than the navigability proposition, which I waive entirely at this moment, I suppose that it must be either because it has rights in the stream which it is bound to protect, or that it owes duties and obligations in the stream which it is the duty of the General Government to enforce. In either case, I apprehend that Congress would have full and absolute authority to protect the right or to enforce the obligation. So that the inquiry to which I ask you to direct your minds is, first, whether the General Government, whether the United States, has any rights in a navigable river, outside of the question of its navigability. Assume, if you choose, that the stream from Fort Erie to Fort Niagara were in the condition of the Whirlpool Rapids, absolutely nonnavigable. What would be the rights of the General Government in that case? We have to consider that it is a natural boundary of the country; that as such it affords a most important means of defense. If the Niagara River were abolished—wiped off of the map—and nothing but a level prairie occupied its place, unquestionably the defenses of the United States upon that frontier would be seriously impaired. I take it that the fortification of the city of Buffalo, in the case of any difficulty with Great Britain, would require serious attention at the hands of Congress. It now requires no attention at all by reason of the natural defense afforded by Niagara River.

This question is not new in the history of the diplomacy of the United States. You will find by referring to the proceedings of the Commissioners negotiating the treaty of Ghent, that one of the demands made, or rather a part of the instructions issued by the British foreign office to its commissioners, was that a part of the eastern shore of the Niagara River should be conceded to Great Britain. You will also find that as a part of the history of the case, leading up to those negotiations, it was a demand on the part of Canada that the entire eastern shore of the Niagara River should be ceded to Canada. The British foreign office did not go as far as that, but that is simply to illustrate that the Niagara frontier has always, in the course of our relations with Great Britain, been an important part of our national defenses. Now, I need not pursue that idea any further, because what follows from it is so plain a deduction that further argument on my part you will have anticipated already.

Suppose that Great Britain should attempt (and it is entirely practicable from an engineering point of view to do so) to divert the waters of the Niagara River from the channel, and leave but a dry bed there. Suppose that it should start the digging of the channel at Fort Colburn, following the line of the Welland Canal, would or would it not be a subject of diplomatic intervention on the part of the United States? I insist that the General Government as a part of its functions as a government has the absolute right to protect its boundaries wherever they may be and whatever they may be, and if it possesses a natural boundary of great value like the Niagara River, it can protect it against depletion or diversion not only by the adjoining power, but from depletion and diversion at the hands of its own citizens.

It may be said that it is farfetched to suppose that the Niagara River will ever be absolutely diverted. Granted, *arguendo*; it is a question of right; whether the time has come to exercise the right, whether there are any dangers, either present or in the immediate future, it is simply a question of fact and does not touch the right of the General Government to protect that river from depletion and diversion whenever, in the judgment of Congress, it is time to do so.

There is in the same connection another proposition which I have not seen adverted to in any of the discussions before your body, but which probably touches or infringes to some extent upon the navigability proposition, and that is this: You have undoubted jurisdiction over the Great Lakes within the boundaries of the United States, and anything which may in any degree tend to impair the navigability of those lakes or interfere with the harbors upon those lakes is certainly within the jurisdiction of Congress.

Now, the Niagara River is the outlet of Lake Erie, and by any interference with Niagara River, either by building a dam or deepening the channel, it is theoretically possible that the navigability of Lake Erie may be interfered with to some extent, either by damming the lake or lowering its level. A lowering of the bed of the Niagara River would unquestionably, other things remaining the same, lower the level of the waters of Lake Erie, and so it seems to me that you would have full power and authority, so far as you could within the boundaries of the United States, to prevent anything which would lower the waters of Lake Erie, and I insist that it is entirely possible that the proposition now pending before you may affect the waters of Lake Erie and their level. I am not going to indulge in any engineering cases, but use the language of Mr. Randolph when he was before you regarding the Chicago Drainage Canal.

I notice that he there stated that there had been great speculation as to the effect upon the level of Lake Michigan and Lake Huron by the diversion of the waters into the Chicago Drainage Canal, and he stated that the maximum effect of the diversion by that canal with its capacity was that it would or might lower the mean level through a series of years 1 foot. I think that that was based upon an estimate of 9,000 cubic feet per second. It is not material whether I am right in that or not; it is a small quantity. Yet the Niagara County Irrigation and Water Supply Company, which is the corporate form under which the General Electric Company wishes to use the waters of this river, is proposing to take from the Niagara River several miles above the Falls, through a canal which they say will divert double that amount; and if they have any rights under their charter from the State of New York, they can divert any amount they choose.

They say that to take from the Niagara River will increase its capacity. Any taking of waters from the river where they propose to take will unquestionably hasten the flow, in my judgment, above from Lake Erie, leaving the same exit which is now afforded by the river passing the Falls and the works of this company; and they claim the right—and if there is any right under the charter from the State of New York, they can do it—to construct a canal of any size they see fit, limited only by the commercial possibilities of the case, and what those possibilities are no man can guess. These questions have arisen within the last twenty years. All the questions relating to a natural

water boundary of the country are entirely new, because until within a few years such a thing has not been possible.

It is now possible, as is shown by what is going on at the Niagara River and at the Chicago Drainage Canal, and where that possibility stops I do not know, and I apprehend that no living person can with any confidence predict. So that I say that you have the right to control the waters of the Niagara River upon the ground that it is an outlet of Lake Erie and that any interference with the waters of that river may interfere with the level of the waters of Lake Erie; and you are the judges of that question, and not the courts, as has been argued here, upon the navigability proposition; and I apprehend that any serious lowering of the level of Lake Erie would be something that would not be tolerated by Congress or this committee for an instant.

So far as to the rights concerned. We turn now to another proposition, as to whether the United States owes any duty regarding this river, whether it is under any international obligation, any obligation to the Government of Great Britain, to prevent diversion of the waters of the stream. We may separate that question entirely from the question of fact as to what has been doing upon the Canadian side. We may, for the purpose of the legal argument, I think, stand squarely upon the proposition that Great Britain objects to any diversion of the waters of that river, and, so objecting, it could be made a matter of diplomatic protest, and how much further it might be carried it is not necessary for me to say, that the Government of the United States should permit that diversion of that river. It is physically possible for either Government to divert that river entirely from its present course and turn the waters of Lake Erie into Lake Ontario either east or west of the present course of the stream.

Now, suppose that attempt were made. Serious international complications would arise if it was made by the Government of either of the adjoining powers. Suppose that attempt is made by the individual citizens of either government, what kind of a question have you there? Is it not a part of the duty of this nation, if protest were made, to prevent the people, the citizens, or any person, whatever their jurisdiction, diverting waters? And is it not equally the duty of Great Britain to interpose the same objections upon its own side of the stream? There are other international complications which might arise. If, as is claimed, the riparian proprietors have a right to the use of the waters of the stream as they flow along, the same as any ordinary stream flowing through private lands—if the people upon the Canadian shore have the right to divert the waters for power and then return them to the stream, they have the right to have the current flow in its usual and customary manner in regard to the ordinary usage in regard to ordinary streams.

That is the proposition upon which all this power must rest. And yet the proposition is made seriously here to divert from the Canadian side waters to the American side of the stream, to enhance the flow of deepen the channel at the head of Niagara Falls, and they say that it will increase the flow of the stream a large percentage. Now, if you have the right to select that proposition, you have the right to the American Falls. That is the proposition of this company, to deepen the channel sufficiently to take the whole body of the stream there. If you have the right to divert, to make the channel 200 feet

wide and 30 feet deep, as the General Electric Company proposes to do, you have the right to permit a channel there which will divert the entire stream, if it is physically possible, and of course it would be by digging your trench deep enough and wide enough, and at once we would have a serious international complication on the ground of interfering with the rights of individuals, and sacrificing them to the right to the use of the stream.

There is no power in this country, I apprehend, which would regulate that upon the American side, except the General Government. The State of New York has no jurisdiction. Great Britain has no recourse to the State of New York upon that question.

So that you may take three propositions—first, the protection of the natural boundary, which affords a natural defense against foreign aggression; second, the preserving of the level of the waters of the Great Lakes, and third, the avoidance of international complications by unduly diverting the waters of the stream; and any one, or all, of those propositions is sufficient to warrant the jurisdiction of the Congress in the case of the Niagara River.

Now, if it be said that none of these touch the preservation of the scenery of Niagara Falls, I grant that. But if you have jurisdiction to prevent the diversion of the waters of that stream at all, there is no power which can inquire into the motive for the exercise of that jurisdiction. The courts will never do that. That has been expressly adjudicated by the United States Supreme Court, so far as an adjudication can be made, in a variety of cases, and I only need call your attention to the case in which that court held that it was lawful to impose a tax of 10 per cent on the currency issued by the State banks. The argument was then made in that case that it was not a tax; that it was an ulterior purpose; that it was simply to wipe out something, instead of affording a revenue. The whole thing was disposed of in the opinion of Chief Justice Chase, who stated that the courts would never inquire into the reason of the exercise of the power; that it was entirely within the cognizance of Congress as to whether it would exercise that power.

I will not go any further into that. I have simply desired at this time to call your attention to these propositions which seem to me to entirely warrant your exercising such power in the case as you think is proper, and is required as a question of fact, and upon those questions, as I said at the outset. I do not intend to enter, except incidentally in showing you that in the particular case in hand the parties seek to do a particular thing which should be prohibited.

The CHAIRMAN. We are very glad to hear from you. There are a couple of questions I would like to ask you. One is in regard to the diversion of the water. You have stated the general proposition, but I think the members of the committee would be glad to have you elaborate it somewhat. The argument has been made here that a certain amount of water could be withdrawn, because it would not appreciably affect navigation or affect the regimen of the river. What do you say about that? Suppose Congress should take action, could the courts review the action of Congress?

Mr. STEVENS. That I apprehend would arise when we considered whether that power was exercised upon the basis of regulating the navigability of the river. I do not think that a court could in any wise review, or would attempt to review, the exercise of power by

Congress upon any of the grounds that I have stated. It would not be for the Supreme Court of the United States or any other court of the United States to exercise any discretion as to what means Congress should use or adopt for the purpose of protecting the boundary of the United States. I will come directly to that point in a moment. It would not be within the jurisdiction of any court to say what means Congress should adopt to prevent the arising of the international complications which I have spoken of, because those matters are necessarily matters of discretion and matters of judgment, and must be in the nature of things committed to Congress and not to the courts, and not to the trial, we may say, of a petty jury.

Now, if we come to the question of navigability, which I have entirely passed by in my argument, another question arises. Congress has seen fit, in its legislation in regard to the navigability of streams, to prohibit the erection of any structure in a stream without the consent of the General Government which would in any way interfere with the navigability of that stream. I am stating that, of course, in pretty broad language. It is the act, I think, of 1890.

The CHAIRMAN. Revised and codified in 1899 and slightly changed.

Mr. STEVENS. You know a great deal more about that than I do. Now, that question, or something analogous to the question, came up in the Rio Grande case in the 174th U. S., and it was there distinctly held that the jurisdiction of Congress to legislate extended to the whole stream, not only to the navigable portions but to the nonnavigable portions as well, provided it could be established as a matter of fact that the interference with the unnavigable portion in any way might tend to interfere with the navigable portion. That arose in that way simply because Congress had not prohibited any particular erection in any part of the stream, but had passed a general act, and whether the act was to be enforced or not depended upon the outside fact, something outside of the law, and of course that fact must be determined by somebody, and could only be determined by the court when the question arose.

So that if Congress passes a general law prohibiting something when that something works a particular result, whether the particular result is or is not worked in a given case is necessarily a fact for the court. But the question now which I understand you have in mind—at least your language points in that way—is this: Suppose that Congress undertakes to exercise its own judgment as to whether some obstructions in a nonnavigable portion of the Rio Grande River would impair navigation of the navigable portion, would that diversion stand unless a court concurred in the correctness of the conclusion? Is that the question?

The CHAIRMAN. That is in the same line.

Mr. STEVENS. Now, I apprehend that we might suppose a variety of absurd things, so extreme, so radical, so ridiculous, that they would answer themselves. For instance, we might say that the planting of a tree on the headwaters of the Rio Grande might affect the flow of some little brook and thus affect the navigability of the stream. But when Congress exercises its judgment on the Rio Grande River and says that there shall be no dam there for the diversion of the waters for irrigation by reason of the dangers to be inferred which will arise to the navigable portion of the stream, I see no escape from the conclusion that the judgment of Congress upon that point is final and con-

clusive, and the courts will not interfere with it. Why? Because it may be in the contemplation of Congress to deepen the channel of the stream.

There may be a variety of uses to which that stream will be put, which Congress is contemplating and of which the courts can and would know nothing; and the courts would not and could not interfere with the determination of Congress upon that. A court could only pass upon the question: "Does that interfere with the navigability of the stream as it now exists," and not as Congress contemplates that it may exist. It seems to me that that simple proposition answers the question which the chairman has put to me.

The CHAIRMAN. To use an illustration: In the decision of Justice Brewer in the case to which you have referred, he speaks of the withdrawal of water of streams tributary to the Hudson River for domestic purposes, such as the withdrawal of water from the Croton River for the purpose of the water supply for New York City. Suppose Congress should pass an act that all the tributary streams emptying into the Hudson River should discharge their waters undiverted or undiminished into that river, what would you say as to the validity of such a law as that?

Mr. STEVENS. I should not wish at this time, or at any other time, to say anything on that question without the most exhaustive study.

The CHAIRMAN. Suppose Congress wanted the amplest possible supply of water in that river for the purpose of navigation, could it prevent the diversion of waters naturally tributary to the stream?

Mr. STEVENS. I can see no reason at the present time.

The CHAIRMAN. You would regard that as an extreme case?

Mr. STEVENS. Yes; I would regard that as an extreme case. But I should be very loth to answer any question upon an extreme case without carefully considering just where the line was to be drawn. All lawyers know, and I believe that most of the members of this committee are lawyers, that when we approach the boundaries of a doctrine we get into very debatable ground.

The CHAIRMAN. One other question upon another subject. You have stated your opinion in regard to the law, that it is not only the right but the obligation of the legislative branch of the Government to take care of a boundary stream which is important for purposes of defense. Suppose certain companies have received from the constituted authority of the State the right to divert water from the Niagara River. Congress takes no action until the plants are constructed for that diversion. What limitations, if any, are imposed upon the power of Congress by its omission to act until the diversions are already an accomplished fact?

Mr. STEVENS. I suppose in any such case there are two limitations which might be considered—first, legal limitations; and second, what I might call a moral limitation. So far as the moral limitation is concerned in this particular case, that, of course, is a matter for your consideration. Assuming that there is no legal limitation, that would involve several considerations—first, whether the diversion is of sufficient consequence as it now exists to interfere with it, although you may have the legal right to do so, and whether it is policy to do that, although that is a mixed question of fact and a large number of considerations would have to be gone over to determine that question, and of course with that I have nothing to do.

Turning to the other side, as to whether there is any legal limitation, that is to say, that Congress had the right to prohibit absolutely any and all diversion, and has not done so, and has stood by and allowed men to invest their money, will they still have the right to destroy the value of that investment by prohibiting the exercise of it, I would say, unquestionably yes, the right would still continue. Of course we are all familiar with the principle in equity that a man, a private individual, may stand by and see something done, and under such circumstances that he will be stopped from claiming that the erection or the structure is unlawful. That is, the courts simply proceed upon this ground:

By your inequitable conduct in keeping silent this has been done, and we will not assist now in remedying the wrong.

I apprehend that that principle can not apply to the operations of a great government. The mere failure on the part of one Congress to properly protect the rights of the Government can not be urged as a reason why the next Congress may not do it. We may suppose an extreme case here again. Suppose that Congress had stood by and allowed a great natural barrier like the Niagara River to be entirely diverted. Would it be beyond its powers, in the contemplation of a war with Great Britain, to order that that stream should be restored to its original channel; and would any power estop that? I apprehend not. And there is no power in the courts to prevent it. Congress does not apply to the courts to help it out. It uses its own powers. Congress asks no aid from anybody, but goes about it itself.

The CHAIRMAN. That is, there is a paramount duty to provide?

Mr. STEVENS. Yes, sir; in all these cases involving a right where there is a mixed right—the right of a private individual, the right of the State, and the right of the General Government—I think you will find in the United States Supreme Court an expression that the right of the General Government is always paramount, and all of the other rights are to be exercised in subordination to it; and simply because a private individual or the State is first in time, that gives it no additional right. Whatever it does it does subject to the right and the power of the General Government, to wipe away the improvement if the public good demands it.

Mr. BEDE. That would take away our liability, then, to the property owner.

Mr. STEVENS. What is that?

Mr. BEDE. I say there would be no liability, then, on the part of the Federal Government to these corporations?

Mr. STEVENS. I do not think there is. I can not see why there is. I have considered it somewhat. It would be quite a long argument and complex. I do not think there is the slightest liability. I think that any man who makes an effort to divert the waters of a stream which is the boundary of the National Government does so at his peril.

Mr. BISHOP. If you have any authorities on that, I would like to see the authorities. That is fundamental, right there.

Mr. STEVENS. I have none at hand, and I am frank to say that I have no particular decision in view. I have in mind a great many general expressions and the theory upon which I think a large number of the cases have proceeded in regard to that matter. The general language that I remember seeing in a variety of the decisions is that the

rights of the General Government are paramount. That means something. If it means "paramount," it means that the fact that they have simply failed to exercise them until after some individual has done certain things would not divest the Government of that right. The right would still be in the Government, because otherwise it could not have been a paramount right.

Mr. BISHOP. It is very likely that that argument will be made before the House, that the Government would be taking away private rights, provided we prevent the taking out by these enterprises of some of the water which they have not yet taken.

Mr. STEVENS. I think if that argument is made you will find it dividing up into a legal right and a moral right, too. They might insist that it is an injustice; that a great government should not be guilty of such an injustice. That may be true in regard to Niagara or in regard to anywhere else, that the Government should not do that, whether it has a legal right to do so or not. The question proposed to me was simply whether the Government had the legal right to do so. I myself, if I were a Member of this House, would certainly proceed very slowly in depriving people of their money who have invested it in good faith. But that was not the question that was asked me. That question was whether it could be done legally.

The CHAIRMAN. Of course, as you say, the moral question is one for the Members of Congress to consider, although the committee is glad to receive any suggestion on that subject. You spoke of preparing a brief and filing it. We should be very glad to have you file that brief. We shall probably withhold any decision upon this bill until after the report of the international waterways commission, which it is expected they will agree upon next Thursday at Buffalo. Certainly until that time there will be no haste about the filing of any brief, and we would be very glad to have it.

Mr. STEVENS. I will endeavor to file something, which will not and can not be by way of citation of authorities very much, because, as is very properly suggested in the remarks of the Attorney-General, which I have read, the question is of the greatest and widest importance in the line on which I have suggested it. It is also a new question in the sense that it has not been raised before. The diversion of rivers is a new proposition; the diversion of lakes is a new proposition; and as commerce grows and the remarkable development of electricity grows, those questions should be of exceeding importance. And if I might be pardoned for suggesting as to the policy of the Government, I think that the bill restricting the further diversion of the waters for three years, or some other length of time, is very important, especially as an injunction pendente lite is important while litigation is going on, to preserve the status quo, and to prevent a large number of these questions which are troubling the committee, and which would trouble anybody, as to the vesting of rights.

The CHAIRMAN. In the same direction as the question I asked a few minutes ago let me ask you this: Would you place the paramount authority of Congress in providing for national defense upon a different ground from its control over navigable waters? You are familiar with the case of *Gilman v. Philadelphia*, and in some other cases it has been held that where an obstruction to navigation was authorized by a State before Congress took the jurisdiction, nevertheless the obstruction must remain. The case of *Gilman v. Philadelphia* was a bridge

case, the case of a bridge across the Schuylkill River, authorized by the State of Pennsylvania, which was evidently an obstruction to navigation. The case was taken to the Supreme Court and the court held that Congress not having acted the structure must remain. That is my recollection of it.

Now, there are other cases in which the principle is laid down that an obstruction authorized by a State before Congress acts, such as an obstruction in a navigable stream, can not be interfered with by the General Government. Would or would not you place this jurisdiction of Congress to provide for the national defense on a different ground?

Mr. STEVENS. That, of course, is a matter of individual judgment, in the laying down of any principle which has never been laid down by any court of jurisdiction; and we have great room for individual opinion. The private opinions of John Marshall, I believe, have shaped the entire history of this country.

For myself, I could answer that very shortly by saying that if we have such a principle here as I claim it to be I should keep it just as broad and as wide as possible, so as to afford full scope for the powers of the General Government, not only in cases which we know of, but in cases which may arise in the future, a hundred years hence, which we can not possibly conceive of at the present time. The question I have urged here, as you will see by five minutes' reflection, is of exceeding breadth in governing the country in the future, not only for the Niagara frontier, but for other places. If we attempt at this time to limit it and narrow it down, we may be depriving this Government of a weapon that it may need sadly in future times, and hence I would keep it as wide as I could, if it were for me to act, as a measure of public policy.

I think that it is important for this country to keep its powers as broad as possible, and that is the tendency of everything at the present time that the powers of the General Government should be enlarged and not restricted.

The CHAIRMAN. I believe that is all, unless there are some other questions. We are very glad to have heard from you. The brief of which you speak can be sent or filed here.

Mr. STEVENS. I thank you, gentlemen, for your consideration.

(Adjourned.)

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Tuesday, May 8, 1906.

The committee met at 11 o'clock a. m., Hon. Theodore E. Burton in the chair.

The CHAIRMAN. First of all, I think it desirable that this report of the International Waterways Commission should be read.

The clerk, Mr. Cassidy, read the report of the International Waterways Commission, which is contained in the message from the President dated May 7, 1906, printed in Senate Document No. 434, Fifty-ninth Congress, first session.

The CHAIRMAN. This is the joint report of the International Waterways Commission. It is concurred in both by the members of the American section, that is, the members from the United States, and by the three members appointed by Canada.

We have Colonel Ernst here this morning.

STATEMENT OF COL. O. H. ERNST, CORPS OF ENGINEERS, U. S. ARMY.

The CHAIRMAN. There are several points about which the committee are anxious to hear from Colonel Ernst. The first point which suggests itself is the inequality of quantity to be diverted on the two sides as recommended by this report. 36,000 cubic feet per second on the Canadian side, and 18,500 cubic feet per second on the side of the United States, with an allowance of 10,000 cubic feet per second for the Chicago drainage canal. Those are the figures, I believe.

Colonel ERNST. Yes, sir.

The CHAIRMAN. How are those figures arrived at, and what was the principle employed?

Colonel ERNST. The theory was that we want to stop the diversion where it is, I mean practically where it is, to allow these works which have invested so many millions of dollars, so that the stopping of them now would practically destroy their entire enterprises, with very little difference in damage now from what it would be if they were completed—to stop those where they are. And the apparent advantage given to Canada is more apparent than real; a large part of that power is transmitted to the United States; so that so far as the benefit to the community is concerned, the benefit from cheap power, we get it from the Canadian side more than they do. They reserve the right to limit the exportation of power to one-half their product, but it is a long way to travel before they will have to exercise that right.

The CHAIRMAN. In that connection, what is your opinion about the probable demand for power in Canada?

Colonel ERNST. Well, I think there will be a demand in the future; but there is not the demand now that there is on the American side; nothing like it.

The CHAIRMAN. Is there existing demand in Canada for the power that would be created by the proposed diversion on the Canadian side?

Colonel ERNST. No, sir.

The CHAIRMAN. What fraction of it, would you think?

Colonel ERNST. I could not tell you that; it is a very small fraction.

The CHAIRMAN. Was attention given by the members of the Commission to proposed regulations forbidding or limiting the importation of power created in Canada?

Colonel ERNST. At our last meeting your bill, this bill which is now before the committee, was presented and that question was raised. Yes, sir; and they seemed to make no objection to the prohibition of the exportation of power to the United States.

Mr. LAWRENCE. Who made no objection, Colonel?

Colonel ERNST. The Canadian members of the Commission.

Mr. LAWRENCE. Made no objection to the absolute prohibition?

Colonel ERNST. Yes, sir; that prohibition in the bill.

The CHAIRMAN. One very important question which the committee has considered is the amount of water which can be withdrawn above the Falls without impairment of the scenic beauty. What do you say on that subject, Colonel?

Colonel ERNST. I can not say any more than was said in that report, Mr. Chairman. To divert the quantity of water which we propose there we think, undoubtedly, is going to have an injurious effect; I mean, the American members think so. We can not tell; it is a dan-

gerous experiment; that is to say, it may not have such an injurious effect as to destroy the grandeur of the cataract; it may still remain one of the wonders of the world. That is the ground we take—that it has an injurious effect, but not necessarily a destructive effect.

The CHAIRMAN. This amount you propose here with that of the Chicago drainage canal would be somewhat less than 30 per cent?

Colonel ERNST. Yes, sir.

The CHAIRMAN. It would be about 29 per cent?

Colonel ERNST. I did not figure that up in percentage—64,000—and it is 222,000 and a fraction; that is the average.

Mr. ALEXANDER. Sixty-four thousand cubic feet, did you say?

Colonel ERNST. Sixty-four thousand cubic feet altogether, counting the Chicago drainage canal.

The CHAIRMAN. Or, to speak more exactly, 64,500 cubic feet per second?

Colonel ERNST. Yes, sir.

The CHAIRMAN. I take it, then, your position in the report is that some concession must be made to vested interests; it is not a concession that this amount can be withdrawn without injury to the Falls?

Colonel ERNST. That is it exactly.

The CHAIRMAN. Statements have been made that 40 per cent, or even 50 per cent, of water could be diverted without injury to the scenic beauty of the Falls. What do you say in regard to that?

Colonel ERNST. I do not believe that.

The CHAIRMAN. Do you regard 29 or 30 per cent as dangerous?

Colonel ERNST. Yes, sir; I think we have gotten the limit, I think we are trying a dangerous experiment with this limit which we have proposed.

The CHAIRMAN. There is one feature with reference to a particular company. The Niagara Falls Power Company, the pioneer company there, seems to have under its franchise the right to construct a second tunnel and divert an additional 8,600 cubic feet, making 17,200 cubic feet per second.

Colonel ERNST. Yes, sir.

The CHAIRMAN. Or 8,600 cubic feet for each tunnel. In your recommendations, as given on page 12 of the original report by the three members from the United States, you recommend that a permit be granted only for 8,600 feet, or the amount diverted by one tunnel.

Colonel ERNST. Yes, sir.

The CHAIRMAN. What do you say in regard to that?

Colonel ERNST. Our idea about that was, Mr. Chairman, not to convey the idea at all that they had no property rights in that additional franchise, but that they had not expended the great amount of money that would be necessary to develop it—the power houses and the machinery, which cost great amounts of money. They have not got those in there now, and it is a question of damages after all. We endeavored to make such recommendations in that respect as we would do if we had all the bills to pay and the United States Treasury to pay them with. Now, I apprehend that there will be a heavy damage claim for this suspension, but not nearly so heavy as it would if they were allowed to go on and put in the additional millions required for the development of that power.

I want to correct one or two ideas in regard to some matters of which complaint was made in this report by the managers of that company.

We mentioned that they had invested (that statement is on the bottom of page 5) the amounts as stated by the managers, which are over \$6,000,000, in the power plant and seven or eight million dollars in other industries established on its lands at Niagara Falls and dependent upon it. Those figures were taken from a verbal statement given at a public hearing. At that public hearing there was a verbal statement made and also a written statement. It turns out that we misapprehended the meaning of the verbal statement.

The \$6,000,000 referred to the same investments that the seven or eight million dollars referred to—that is, the other industries established on their lands. I have since become convinced that that amount should be \$13,000,000 instead of \$6,000,000. The point is not very important in this connection, because what we were endeavoring to emphasize was that the investment was very large—the investments were very great—and we wanted you to understand how important those interests were. In reference to a majority of these companies, we did not give any figures; we simply said “several million dollars.” So I do not think there is any ground for serious complaint in regard to that, but, as I have said, that is a mistake; it ought to be \$13,000,000 instead of \$6,000,000.

The CHAIRMAN. That is, other industries established on its lands at Niagara Falls and dependent upon it should be included in the investment of the Niagara Falls Power Company?

Colonel ERNST. No; I mean the investment in the power plant; the power plant should be \$13,000,000 instead of \$6,000,000.

The CHAIRMAN. Then the way to correct it would be to change the “6” to “13?”

Colonel ERNST. Yes, sir; that is it.

Further on, on page 11, to which I wish to call your attention, with reference to that same company, we say it has constructed works having about one-half that capacity—that is, about one-half the 200,000 horsepower—but has not begun the construction of the additional works, and we believe has no present intention of doing so. That wording was not intended to convey the idea that they had no intention of ever doing so, that they had no intention of doing it at present.

The CHAIRMAN. Just where is that?

Colonel ERNST. That is about the middle of page 11 in paragraph 30; the sixth line of paragraph 30. I have no doubt that they have had in mind that at some time they would develop that power, but we intended to convey the impression that we do not believe they intend to develop it at present.

Mr. DAVIDSON. In that connection, referring to that intake canal of theirs, is there anything about that that could have been constructed for a less sum?

Colonel ERNST. They might have made it a little less wide and a little less deep, but there is just that excavation.

Mr. DAVIDSON. It is only a short entrance there?

Colonel ERNST. That is all. The dimensions of that intake canal do not, I think, play any particular part in the development of that horsepower, but still it is something. They would have a claim of damages, and you ought to understand that.

Mr. LAWRENCE. You say you believe that if we permit the diversion of one-third of the Niagara River it will have an injurious effect on the Falls as a scenic spectacle. Of course that is an important

matter with us, and I wish you would give your reasons a little more in detail for coming to that conclusion. For instance, supposing one-third of Niagara River is diverted, how much do you think that would lower the height of the water as it goes over the crest of the American Falls, and how much do you think it would lower the water on the crest of the Horseshoe Fall?

Colonel ERNST. I would not give any opinion as to the amount on either fall?

Mr. LAWRENCE. Then, will you not tell us why you think that a diversion of one-third of the water would injure the scenic grandeur of the Falls?

Colonel ERNST. It seems to me self-evident that if you take one-third or even one-fourth of that water you would certainly diminish the volume of the falls; but when you come to feet and inches I can not tell you, and no other man can tell you, how much the deduction of a certain amount of water will lower that crest; because there is no hydraulic formula to work it out by. The crest is irregular; it is not straight; it is not horizontal, and no man knows exactly how much water is going over there now. We put it at $12\frac{1}{2}$ per cent.

The CHAIRMAN. That is on the American side?

Colonel ERNST. On the American side. The engineer of one company on the Canadian side says that it is only 10 per cent, and another hydraulic engineer puts it at 15 per cent. It is about 10 to $12\frac{1}{2}$ to 15 per cent, and that is all any man can tell you as to the quantity of water going over there. The shape of that crest is absolutely unknown. Engineers have testified here that it has an average depth of 4 feet. They don't know; there is no way to find out. Some parts of it I know are not over a foot deep, because I saw a log lodged on it the other day—what we call a snag on the western rivers, a dead tree with the branches and roots removed.

The CHAIRMAN. Mention has been made of the so-called Francis formula. What is your opinion as to whether that is applicable to Niagara Falls and whether by the use of that formula you can judge of the depth over the falls?

Colonel ERNST. Mr. Chairman, it is absolutely inapplicable. The Francis formula was deduced from experiments on artificial weirs; it is a formula for computing the flow out of a reservoir over a weir. The original formula was for a weir with what is called a knife edge—a sharp edge. It was found that different weirs gave very discordant results, and subsequently investigators have changed the formula to fit it to all shapes of weirs, or at least a great variety of shapes, and there is a difference whether the water approaches the weir at a considerable velocity or whether it is quietly flowing out of the reservoir.

The condition to which that formula must be applied must be something like those under which it was framed. It involved some of these conditions: The weir must be straight. There is a map that I have had hung up there. You can see for yourself it is nowhere near straight. The weir must be horizontal. You can see that it is nowhere near horizontal there, it has nothing approaching the horizontal condition. And there must be a reservoir inside. There is no reservoir anywhere nearer than Lake Erie, 20 miles away. And you must know the velocity of the approach. But you do not know it. It has been measured differently up there. One engineer reports it 8 feet a second. He measured it near the shore. Another man reports it 20

feet a second. That is what we call the velocity head; that has to be used in this formula—the velocity. And those two results—8 feet and 20 feet—will give you a difference in depth of 50 per cent. So, as I told one young gentleman up there, the Francis formula is about as applicable to Niagara Falls as it is to the Pennsylvania Railroad, and no more.

The CHAIRMAN. Is there any way of figuring upon the lowering of the falls that would be caused by the diversion of one-third of the water? That is, suppose you take a certain depth for the flow over the falls, and a fraction of the water were diverted, could you tell how much the fall would be lowered?

Colonel ERNST. Yes; if you had conditions anything like these, under which the formula was framed, you could do that; that is, if you had a reservoir and you knew the shape of that crest—knew the form of it—you could.

Mr. LAWRENCE. That was not exactly the chairman's question.

The CHAIRMAN. Well, as applicable to this case—that is what you really want to know—can you tell how much the depth of the flow of water over the falls would be diminished by the withdrawal of any percentage—one-third, for instance?

Colonel ERNST. No; you can not tell.

The CHAIRMAN. What do you say of the possible effect of the diversion of water from Niagara River, at the points where it is now being diverted, upon the level of Lake Erie?

Colonel ERNST. I do not think it will affect the level of Lake Erie; they maintain their heads.

The CHAIRMAN. And upon the level of Niagara River above the point of diversion?

Colonel ERNST. No, sir; I do not think it will affect it.

The CHAIRMAN. I have an opinion here from Professor Williams, of the Michigan University. Do you know him at all?

Colonel ERNST. Gardner S. Williams?

The CHAIRMAN (continuing). In which he expresses the opinion that it will have an effect on the level of Lake Erie.

Colonel ERNST. It can not affect the level of Lake Erie unless you take out more water, and that is not what they propose to do; they simply take the same quantity of water out of Lake Erie.

The CHAIRMAN. This is what he states. This is Gardner S. Williams.

Colonel ERNST. Yes, I know him.

The CHAIRMAN. This is what he says:

With such information as is now in my possession I estimate that should a diversion of 60,000 cubic feet per second be made by the power companies in the vicinity of Niagara Falls, then the mean level of Lake Erie would be lowered at least between six-tenths of a foot and 1 foot. It is quite possible that the effect might be even greater than this if no provision were made to retard the discharge over the Falls at the time of these diversions.

Colonel ERNST. I do not see how he reaches any result of that kind.

Mr. BEDE. By that it would indicate that this does not change the condition of the Falls at all.

The CHAIRMAN. No; it is a question whether, if more water is drawn out, whether the flow over the Falls is not continued as it was and merely an extra amount taken out from Lake Erie. That would seem to be his theory, or perhaps that the diversion is divided between the two.

Mr. LORIMER. Would it increase the velocity of the water going over if it was diverted above the Falls?

Colonel ERNST. No, sir; it would not.

Mr. LORIMER. That is my opinion of it too, and I do not see how it could lower the level of Lake Erie unless more water came out.

Mr. JONES. Would that increase the velocity of the water flowing out of Lake Erie?

Colonel ERNST. Not unless you decrease the resistance, and you do not do that.

Mr. LORIMER. Would not the tendency be to lessen the velocity?

Colonel ERNST. I think the tendency might be that way. It is to the interest of the power companies to maintain their head; they have got to do that, and sometimes they put out diversion dikes in order to draw more water in there.

Mr. JONES. And that checks—

Colonel ERNST. That changes the amount that goes over the Falls, but not the amount from Lake Erie.

Mr. JONES. Does not it even have a tendency to throw it back to Lake Erie?

Colonel ERNST. They try to even the thing up; they have to maintain their heads, for their machinery.

Mr. ALEXANDER. How would it be possible to get more water to run out of Lake Erie than is running out now? Supposing you wanted to discharge more water out of Lake Erie than is being now discharged, how, as an engineer, would you go about to do it?

Colonel ERNST. You would have to reduce the resistance—that is, enlarge the channel.

Mr. ALEXANDER. You would have to cut down the channel out of Lake Erie into Niagara, would you not?

Colonel ERNST. Yes; you would have to do that.

Mr. ALEXANDER. Or increase the flow at the crest of the Falls, making it steeper?

Colonel ERNST. Yes; you have to enlarge it somewhere. It is conceivable that you might enlarge the channel so much as to increase the slope, and that would increase velocity; but anywhere along that river, if you enlarged the channel and decreased the resistance, you would tend to lower Lake Erie, but in no other way.

Mr. ALEXANDER. But you would have to increase the slope, so that there would be more chance for more water to come out of Lake Erie?

Colonel ERNST. Yes, sir.

Mr. DAVIDSON. The crest of the Falls does not act as a dam at all.

Colonel ERNST. No; it is only one of the resistances.

Mr. DAVIDSON. It is very much lower than the lower end of Lake Erie?

Colonel ERNST. Yes; it is.

Mr. DAVIDSON. So it is simply a continuous slope downward from the outlet of Lake Erie until you reach the Falls?

Colonel ERNST. Yes, sir.

Mr. SPARKMAN. And if it were possible to lower the Falls would not that draw out more water?

Colonel ERNST. Yes; to lower that channel anywhere that would tend that way, but of course that is a big thing.

Mr. LAWRENCE. Why do you recommend that so much more water

be diverted on the Canadian side than shall be diverted on the American side?

Colonel ERNST. Because they are coming in there with millions of dollars now to divert this quantity of water mentioned.

Mr. LAWRENCE. Who is coming in?

Colonel ERNST. On the Canadian side; those three Canadian companies are embarking on a great enterprise, each one of them. Their work is not finished, but they have gone so far that practically to stop them now you would destroy their whole investment, and the question of damages—that is also to be considered, and that was in our minds all the time—the question of damages would be practically no greater if they had finished their work than it would be now. It gives them more water than us, but we get the use of it.

Mr. LAWRENCE. You recommend that they be permitted to divert nearly twice as much as the Americans?

Colonel ERNST. Nearly twice as much for power purposes, and there is also the 10,000 cubic feet per second for the Chicago drainage canal.

Mr. LAWRENCE. You also favor that provision in the bill that we prohibit the importation of power into the United States—

Colonel ERNST. No.

Mr. LAWRENCE. I thought you said you did.

Colonel ERNST. I said the Canadian members made no objection to it.

Mr. LAWRENCE. What is your opinion about that?

Colonel ERNST. It seems to me you are raising a big damage bill there, too. These transmission companies have embarked in a big enterprise—have raised a lot of money. We did not mention them in our report because they do not take water, but from the financial side they are important; they have made contracts for the transmission of this power, and if you stop them you destroy them, too. I think that in that direction I would not go quite so far as to prohibit it absolutely, if you wish to limit it; I would limit it to what the Canadians have done. They have retained the right to require one-half of that power generated to be furnished to Canada.

Mr. ALEXANDER. Well, as an American here, would you recommend that, Colonel Ernst, to limit the importation of even—

Colonel ERNST. I do not say I would recommend it.

Mr. DAVIDSON. What objection can there be to permitting as much power as they can produce to come into this country, providing always that the amount of power used is limited—

Colonel ALEXANDER. To 36,000 cubic feet?

Mr. DAVIDSON. Yes; to 36,000 cubic feet. What objection is there to bringing that power into this country?

Colonel ERNST. I would admit it, personally.

The CHAIRMAN. What assurance have you that they will not go on with further construction on the Canadian side?

Colonel ERNST. Of course we have no very positive assurance. The Canadian members of that commission have now joined us in these recommendations, this report that has reached you this morning, and this report shows that they follow us in these figures.

The CHAIRMAN. Is it not a fact, however, that there are several outstanding franchises on the Canadian side that could be utilized for the diversion of more water?

Colonel ERNST. Yes, there are; but they have not perfected their rights. They are in the same situation as these two companies on our side that have franchises, but have not perfected their rights.

The CHAIRMAN. What is your own opinion, as derived from a survey of the situation, as to whether any more development will occur on the Canadian side?

Colonel ERNST. I am inclined to think that there will not be any; that they mean to join us cordially and frankly in this limitation; I think that is what they intend. Whether, when they come to looking into the rights of these companies which are not fully developed, they will hold to that view, of course, I do not know what the result may be; but I think that is their present intention.

The CHAIRMAN. I take it you put your recommendation in regard to the relative amount allowed the two sides on the same footing as to the total amounts, namely, vested interests.

Colonel ERNST. Yes. That is what fixes those figures.

The CHAIRMAN. And you regard the vested interests as greater on the Canadian side than on the side of the United States?

Colonel ERNST. Yes, sir; so far as power is concerned.

Mr. SPARKMAN. You say that will be taken care of by paying the parties?

Colonel ERNST. That is a legal question I am not so sure about, but I kept it in my mind; I felt that there would be a big damage bill.

Mr. SPARKMAN. Is it proposed that the Canadian people take care of the damages on that side?

Colonel ERNST. That has not come up in terms, it was latent, we have not discussed whether damages should be paid or not.

Mr. SPARKMAN. Some treaty arrangement, I suppose.

Colonel ERNST. Yes; all the commission recommended or agreed to was that our Government should restrict the diversion on our side to these figures, and that the Canadian government should restrict their diversion on that side to those figures, and how they should manage that increase we could not decide. We recommended in the report that it should be either by treaty or legislation.

Mr. ALEXANDER. Is it your opinion, as an engineer, that the diversion of 10,000 cubic feet per second for the drainage canal of Chicago will divert an equal amount from Niagara Falls—that that amount is diverted from the Niagara River?

Colonel ERNST. Certainly, yes sir. Some evidence was given here that that water would be evaporated before it got to Niagara. That seems to me a very foolish suggestion. The amount of evaporation depends entirely on the water surface shown, and if any particular body of water in Lake Michigan does not come down through the course, and in part spread itself out and be evaporated, then some other water to an equivalent amount will have to be evaporated; it is simply the area exposed. If you take water out of Lake Michigan enough to reduce the area then you will reduce the amount of evaporation, but that is not a practical question. The estimate that 10,000 cubic feet a second diverted at Chicago will lower the level of Lake Michigan six inches—that effect on the evaporation of the surface is insignificant, the reduction of the area is insignificant.

Mr. SPARKMAN. How much water goes out through the Erie Canal there?

Colonel ERNST. Three hundred and thirty-three cubic feet a second. We allow them 400 in this.

The CHAIRMAN. Is that likely to be increased when the barge canal is opened?

Colonel ERNST. I do not know; yes, sir; I think it would be, probably.

The CHAIRMAN. But not greatly increased?

Colonel ERNST. Not greatly; no. Nothing in the thousands. I have heard the number 1,200 or 1,500 mentioned, but I do not think there is any definite scheme for that. I think they would probably want to increase it.

The CHAIRMAN. Now, in regard to the proposed dredging there at Grass Island, on the American side, two questions about that: Would dredging there, in your opinion, materially increase the flow over the American Falls? Second, do you find any objection to such dredging from the Canadian members?

Colonel ERNST. You could dredge enough there undoubtedly to increase the flow over the American Falls materially. That could be done; how much dredging I am not prepared to say. I do not think any man can compute how much it would cost to divert any given quantity of water through the American Falls. The Canadians would object to it. That suggestion was made at our last session; they protested most vigorously against anything of that kind being entertained. And it should be noted that almost everyone who appeared for Niagara Falls took it for granted that something of that kind should be done in order to preserve the American Falls.

Mr. DAVIDSON. Was that plan proposed here by some one?

The CHAIRMAN. Yes, sir; and the obstruction is a good deal like a wing dam.

Mr. DAVIDSON. And you say the Canadian commissioners strenuously protested against anything like that?

Colonel ERNST. Yes, sir; they did.

Colonel ALEXANDER. Is it not somewhat strange that the American reservation commissioners did not long ago put a channel through that wing dam and bring down more water over the American Falls, in order to beautify it?

Colonel ERNST. Well, it is an international question.

[Informal discussion followed.]

Mr. ALEXANDER. I think anyone going out there, as Judge Burton and I did, and looking at it, a perfect wing dam runs out within, they said—what was it, within a half a mile of the Navy Island, I think; what was the distance?

The CHAIRMAN. Below; perhaps a half a mile or a little more.

Mr. ALEXANDER. So it throws the American water that comes down between the Grand Island and the American shore over on the Canadian shore, and it throws it over with violence.

Mr. DAVIDSON. What do you mean by a wing dam?

The CHAIRMAN. A natural reef.

Mr. ALEXANDER. A natural reef; yes.

Mr. DAVIDSON. And what is the effect of the wing dam?

Colonel ALEXANDER. One of the engineers suggested that it throws that current across with such velocity on the Canadian shore that it reflects and is the cause of cutting down the apex of the Horseshoe,

which Mr. Wilson testified up there was really the cause for the destruction of the Falls up to date. It was cutting, he said, 5 feet a year, and he said it had destroyed the Falls—had been the instrument of destroying the Falls, so far as it had been destroyed.

Mr. HUMPHREYS. Would not the Canadian government have the same right to object to our removing that wing dam that we have to object to withdrawing any considerable amount of water from the river, both objections being predicated on the right of each government to insist on the boundary stream being left as it was originally?

Mr. ALEXANDER. That undoubtedly would do it now, but if it had been done eight or ten years ago not a word would have been said. Why, this Rivers and Harbors Committee has before it a plan which includes a cutting away of a part of that wing dam for navigation purposes—down to Port Day, I believe it is.

The CHAIRMAN. I have not examined that plan, but there is a plan for improvement down to Fort Day, which is below this so-called wing dam or reef. The question arises whether dredging could not be done there. It seems to me it is an international question. That is a boundary which is fixed with reference to existing conditions, and if there is a right in the two nations on the respective sides to a division of the waters, that boundary line would be supposed to have been fixed with reference to the direction in which the waters naturally flow and the quantity.

Mr. JONES. That might have a tendency to destroy the scenic grandeur—the grandeur there is on the Canadian side, where the immense falls are, the tremendous fall of water—and if we divert it over on our side it would make two small falls. Of course they would be large falls, but it would take away the grandeur.

Mr. ALEXANDER. It would not be noticeable from the Canadian side, but it would be noticeable on the American Falls.

Mr. JONES. Yes; it would be noticeable on the other side if you would divert a whole lot of that water; as much as the power companies divert, for instance.

Mr. SPARKMAN. Does the treaty between this country and Great Britain undertake to settle the question as to the amount of water on each side?

The CHAIRMAN. No. The statement was made that the aim was to divide the waters equally. It is possible that such was the purpose of the Commissioners, but there is no indication of it in the treaty. I will read the provision of the treaty. This was fixed by the Commissioners in 1822. After describing the line in Lake Ontario:

Thence westerly along the middle of said lake to a point opposite the Niagara River; thence to and up the middle of said river to the Great Falls; thence up the Falls to the point of the Horseshoe, keeping to the west of Iris or Goat Island and of the group of small islands at its head, and following the bends of the river so as to enter the strait between Navy and Grand islands.

There are some maps that were approved by the Commissioners; of which we have a copy here.

Colonel ERNST. It has been transferred to that map, that boundary, that was taken from the treaty of Ghent map, filed in the State Department.

The CHAIRMAN. Here is the international boundary [indicating on map]. An examination of the treaty does not disclose that it was

intended to divide the waters equally, although that may have been in the minds of the commissioners.

Mr. ALEXANDER. I will suggest this, Mr. Chairman: That on the west side of Grand Island the Canadian waters extend within 200 feet of the Grand Island shore.

The CHAIRMAN. Up here [indicating on map]?

Mr. ALEXANDER. Yes, within 200 feet; so that would indicate that they were trying to get just about one-half of the waters. They give all the channel, of course, on the east side of Grand Island to the Americans.

The CHAIRMAN. It might be beneficial to the committee to point to the place where that reef is. It is along here [indicating on map], above Grass Island. The water has a depth of 1 to 3 feet. Grass Island is right there [indicating]. You will note along there there is 19, 21, 18, 16, 17, 14, and then it falls off to 9. Here is a place where it is 2, 3, and 4; right here it is 6, 7, 9, 10, etc. It is not exactly a straight reef, although I must say that to one on the shore it looks as if it was a straight reef across there [indicating on map]. It seems as if it were a sort of a fall, but the water is held back there, you can see. One further point the committee would like to hear from you about. There are certain companies planning to divert water below the Falls. Has the commission given any attention to the subject of the effect of such diversion upon the rapids below the Falls?

Colonel ERNST. No, sir; not specially.

The CHAIRMAN. Have you any suggestion to offer about that, whether the diversion of 20,000 cubic feet per second would impair the beauty of the Whirlpool Rapids there or other rapids below that?

Colonel ERNST. I do not think it would.

The CHAIRMAN. Is it not true, however, that some limit should be placed upon that?

Colonel ERNST. Yes, sir; I think so.

The CHAIRMAN. Could as much and more be withdrawn proportionately from the rapids without endangering their grandeur than from the Falls?

Colonel ERNST. I think you could probably withdraw more there.

Mr. LORIMER. Colonel, the engineers of the drainage board in Chicago state that ultimately they will require 14,000 cubic feet a second for the sewerage, and your commission recommends that 10,000 cubic feet be used there ultimately. When the time arrives that 14,000 cubic feet are absolutely necessary how would your commission propose to take care of it?

Colonel ERNST. I think that it would be a very long time, some generations probably and perhaps never, before 14,000 cubic feet will be required for legitimate sanitary purposes. Nobody questions the propriety of giving Chicago all the water she requires to preserve life and health, but, as you know, there are other schemes on foot there; there are schemes for water power and for new transportation lines. Now, 10,000 cubic feet a second amounts to 6,462,000,000 gallons per day, or about 15 times the quantity of water that the city is now pumping for all purposes. That would be about 1,300 gallons per day for each person with a population of 5,000,000. That will take off a good deal of sewerage.

Mr. LORIMER. You suggest that they are diverting water for water power. Is it a fact that they are utilizing the water that they have

for power rather than allowing it to go over the bear-trap dam, or are they really diverting water for power?

Colonel ERNST. No; it is simply an incidental use.

Mr. LORIMER. Yes; they have the water, and they utilize it, but whether they utilize it or not, under the statute that authorizes this water way they are compelled—if the Federal Government will permit them—to use a certain amount of water; is not that a fact?

Colonel ERNST. Yes; that is what the State law requires.

Mr. LORIMER. You say it may be a century or may be two centuries before Chicago will require 14,000 cubic feet per second; but you have seen Chicago grow and so have I. I do not think it will be two centuries before Chicago has 5,000,000 population.

Colonel ERNST. No; I do not either.

Mr. LORIMER. And the time will come, in my opinion, when the maximum amount of water will be required. How do you propose to take care of it?

Colonel ERNST. This treaty is only for twenty-five years, and I do not believe Chicago will have 5,000,000 population in twenty-five years from now.

Mr. LORIMER. Well, it is not a bad thing, Colonel, in establishing treaties of this kind, where both governments, or the people of both governments, are vitally interested, to say, now, at the outset, that so much may be used for water power on the Canadian side and so much for water power on the American side, and 4,000 cubic feet per second less than the amount required for the Chicago drainage canal; does not that establish a precedent that a future commission may have some trouble to overcome?

Colonel ERNST. Well, it was to take some limit; we had to take some figures. That seemed to be a very liberal figure for legitimate sanitary purposes, and the possibility of taking 14,000 cubic feet is something that none of us ever heard of until this report came out.

The Chicago drainage canal was not designed originally to carry more than 10,000 cubic feet a second; it has never been allowed to take more than 4,166 cubic feet a second, under the permits of the War Department. That amount has served the city well so far. Now, what the effect may be on Joliet, whether Joliet would like to have a stream of water that is not diluted with 20,000 cubic feet for every 100,000 inhabitants—I believe that is the State law—is another question; but there are other important interests there besides Chicago that have never been consulted at all. This 14,000 cubic feet is sprung on us without any other interest being consulted. They go ahead in Chicago like they own Lake Michigan, and nobody else is to be consulted. As a matter of fact, the navigation interests of the Great Lakes are very important, and they have never been consulted.

Mr. LORIMER. What do you regard as more important, the preservation of health or the creation of power?

Colonel ERNST. The preservation of health, undoubtedly, and I say to give Chicago all she wants for that purpose.

Mr. LORIMER. In reference to your statement that Chicago is not now using and could not use the amount of water they may be entitled to and must use under the State law, if permitted by the Federal Government, is it not a fact that we are spending millions of dollars a year to create a channel capable of carrying the 10,000 cubic feet a second?

Colonel ERNST. Yes, sir.

Mr. LORIMER. At the rate we are now expending money for that purpose it will not be very long before we have a canal that will take that amount.

Colonel ERNST. That is true.

Mr. LORIMER. So there is not much in the statement that the canal is not capable of handling the amount of water that we will ultimately take?

Colonel ERNST. The only point about that statement was to show the present necessities.

Mr. LORIMER. Of course if it was only to-day that we had to consider, there would not be much in any discussion with reference to the Chicago drainage canal; it is largely a question for the future. I have seen Chicago grow from 200,000 to 2,000,000—

Colonel ERNST. It is impossible to foretell the growth of Chicago; I would not like to undertake that, but I say that 10,000 cubic feet per second will give 1,300 gallons per day for each person with a population of 5,000,000, and it seems to me that that is enough for sanitation purposes.

Mr. MEADE. I understood that that was partly needed to reverse those rivers.

Mr. LORIMER. One river is already reversed.

Colonel ERNST. They have one reversed, and they can easily reverse the other, and then the question is simply a question of dilution.

Mr. DAVIDSON. Can you, offhand, tell me how many cubic feet are now being used on the American side and how many on the Canadian side?

Colonel ERNST. The first company on the American side, the Niagara Falls Hydraulic Power and Manufacturing Company, is using 4,000 cubic feet per second; and the other company, the Niagara Falls Power Company, is using 8,600 cubic feet per second. They are using about 8,000, to be more precise, and one of the tenant companies is using about 600 feet; but the concern is taking out 8,600 cubic feet. That is on the American side.

Mr. DAVIDSON. That is 12,600 feet on the American side now being used. Now, how about the Canadian side?

The CHAIRMAN. And then there is the Erie Canal, but that is probably not worth while to consider; it is something less than 400.

Colonel ERNST. Three hundred and thirty-three, we call that. The Canadian Power Company is now using about 2,600 feet per second; the Ontario Power Company is using about 2,000 feet.

The CHAIRMAN. What other companies?

Colonel ERNST. The Electric Development Company are not taking any now. Then there is a little concern, the Park Electric Company, which is taking about 600 cubic feet per second.

The CHAIRMAN. So the amount now being diverted is about two-sevenths of what would be diverted if all these companies that you regard as having vested interests were to divert what they are allowed to take?

Colonel ERNST. I have not figured it out.

The CHAIRMAN. That is about 17,800.

Colonel ERNST. About 17,800.

Mr. DAVIDSON. Altogether, with what the drainage canal is now

using, my figures would make it 21,500 now being used outside the Erie Canal, out of 65,400 which you would permit to be used.

Mr. ALEXANDER. You have not included the Welland Canal?

Colonel ERNET. No; they take about—I will give you that in a moment.

The CHAIRMAN. Counting that in, it would be about one-third?

Mr. DAVENPORT. Yes; about one-third.

Colonel ERNET. The Welland Canal we put down here as 1,500.

Mr. LAWRENCE. I do not quite understand why you think that the vested interests of the Canadian companies are so much stronger than the vested interests of the companies on the American side of the Falls. On the Canadian side they are to-day diverting very little water. Here is the Niagara Power Company on the other side, which is diverting about 2,600 cubic feet per second, and their plans are already made for their second tunnel—they have a mortgage issued on that basis. Why do you not consider that as much a vested right as the vested rights of those companies on the Canadian side?

Colonel ERNET. I do consider it a vested right, but they have not put the money into the actual work of construction that they have put in on the other side. On the other side they have enormous works already under construction; their tailraces are completed, their intakes are completed, their power houses are nearly completed, and some of their machines are set up. They have gone so far that they can not stop without pretty nearly a total loss.

Mr. LAWRENCE. That is what I wanted to know—

Mr. ALEXANDER. Is it not a fact that the Niagara Power Company on the American side, taking now 2,600 cubic feet per second, diverting 2,600 more water with a second tunnel—that it, too, has gone so far that for all practical purposes the outlay has begun, and to stop that tunnel now would deprive them of a great deal?

Colonel ERNET. It would deprive them of certain rights which I can not estimate; I do not know what they are. They have that right under the New York franchise, undoubtedly, to take that amount of water.

Mr. ALEXANDER. They have their right of way.

Colonel ERNET. Now, looking toward that, they have made a bigger intake than they otherwise would require; they have acquired a right of way for a tunnel. I don't know whether it would be useful or not; it looked pretty crooked to me, but still they have made those expenditures. And their general plans have contemplated at some time in the future this general development; but they have not put in the large amount of money required. Take that slot, for instance, in the solid rock, 150 or 160 feet deep, they have not done anything toward that. They have not bought any machinery, they have not excavated that tunnel. Those are the heavy expenditures that will be necessary before they can take advantage of their rights, and it seems to me that those rights could be extinguished now for much less loss than in the future, after they have gone ahead and completed many of these improvements.

Mr. LAWRENCE. Can you tell us how much has been expended by the companies on the Canadian side?

Colonel ERNET. No; I can not.

Mr. LAWRENCE. Have you any idea of the amount?

Colonel ERNET. No; I have not. We put it down at several million

dollars—that is all; we merely wished to convey the idea that the interests are large. The impressions that we obtained were from a personal visit. There are the works, anyone can see them; they are far advanced toward completion.

Mr. LORIMER. Is not the Ontario Power Company in the same position as the company to which Colonel Alexander has just referred? They have an intake larger than necessary for the amount of power that they will develop with the machinery that they have installed, but is not that all? They have not put in their conduits. I understand they are carrying the water to their powerhouse by conduits, and they have not put them all in?

Colonel ERNST. No; but they are actively engaged in construction.

Mr. LORIMER. They have not put in any more than what is necessary for the amount of machinery that they are now installing, have they?

Colonel ERNST. I can not tell you.

Mr. LORIMER. That is my impression. I went all through their plant last Monday, and the impression that I have is that they have just put in conduits enough to develop 90,000 horsepower.

Colonel ERNST. Yes; that may be so.

Mr. LORIMER. Now, then, if that is so, their intake is the only place where they have expended an excessive amount of money, and if that be true, to develop the amount of power that their machinery will now develop they would only require 6,000 feet a second, if we stop there. I am not absolutely certain that my ideas are correct.

Mr. ALEXANDER. I think you are practically correct, Mr. Lorimer, as to what they have expended.

Mr. LORIMER. The other power houses are installing machinery to develop their maximum amount of power, are they not—the other two on the Canadian side?

Colonel ERNST. Yes; I believe they are.

Mr. LORIMER. I went into one of the pits I know, and through the tunnel, and I know that work, so far as excavation and construction is concerned, is completed, and they are installing their machinery; but it did seem to me that the Ontario people could stop where they are without any loss further than the excessive amount that they have expended in their intake.

Mr. LAWRENCE. That is, that the Ontario Power Company could stop with as little loss where they are now as the Niagara Power Company?

Mr. LORIMER. Yes; on the other side of the river.

Mr. LAWRENCE. It seems to me that is rather important.

Mr. LORIMER. Have you any opinion on that, Mr. Chairman?

The CHAIRMAN. For illustration: Suppose manufacturing plants had been constructed on the Canadian side for the sake of sending some article into the United States on which there is no duty. It is perfectly clear that a duty could be imposed so that the manufacturing in those plants would be unprofitable, and it is clear, equally clear, that a statute could be passed forbidding the transmission of that power into the United States without any claim for damages against the United States. So as a result of it the right exists very clearly to prevent that power from coming into the United States. They can not go ahead with their construction there and take it for granted that it will be freely transmitted from the other side. It is true that they have advanced very far, and it has largely been with American capital.

Mr. LAWRENCE. But the point to which Mr. Lorimer was referring, as I understand it, was that we say to the Niagara Power Company on our own side: You must stop where you are with your 8,600 cubic feet a second, and then the company on the other side, in practically the same condition, can go on and develop 6,000 cubic feet more.

The CHAIRMAN. Yes.

Mr. LORIMER. The theory of this report is—at least this is what I deduct from it—that the Canadian people have either invested or are ready to invest money enough to develop the maximum amount of the power that their grants will permit; but they have not come up to the point—that is, the Ontario company has not come up to the point where it is necessary for them to do that, and they have not done it. They are exactly in the same position that the company on the other side of the river is in. Now, why permit them—of course we can not stop them; but why agree that they shall go ahead and develop all they are entitled to under their grant and permit them to transmit it to the United States, and stop the people on our side of the water?

Mr. BISHOP. It seems to me, Mr. Lorimer, that the joint commission have struck the right idea; that it does not matter so much whether more is taken out of the Falls on the Canadian side, so long as the development of power at the Falls is for the use, probably, of the American side or American capital, as much as for Canadian capital, and perhaps more; and, further, that the diversion could be made on the Canadian side with less injury to the scenic beauty than on the American side. It is not a matter of how much is taken from the Falls on the Canadian side or on the American side; it is a question as to how much the Falls can have taken without injuring the scenic beauty.

Mr. LORIMER. If your latter statement was correct, Mr. Bishop, I would probably come nearer to agreeing with you; but I have not heard anything that would indicate that this increased amount is permitted to the Canadians on the theory that it would less likely destroy the scenic beauty of the Falls.

Mr. LAWRENCE. The statement was that it would not interfere with as many vested interests on this side.

The CHAIRMAN. I take it, however, that the Commission has taken into consideration the ideas expressed by Mr. Bishop, that whether taken from one side or the other the main question is interference with the scenic beauty of the Falls. We have also taken into account the fact that the Falls are deeper on the Canadian side, or on the other side of Goat Island. There is one place right there just below Goat Island—Terrapin Tower, I believe, it is called——

Mr. ALEXANDER. Yes.

The CHAIRMAN (continuing). Where the fall is as scanty as anywhere on the whole crest. That is on the Horseshoe side.

Colonel ERNST. Yes, sir.

Mr. SPARKMAN. You do not undertake to put any of those things in this bill except you want to limit the amount of water taken out?

The CHAIRMAN. That is correct. The bill is drawn on the theory that we must provide for all eventualities on the Canadian side, conceding that we do not have control.

Mr. SPARKMAN. You can only do that by treaty.

The CHAIRMAN. Yes.

Mr. SPARKMAN. The bill does not undertake to create any commission.

The CHAIRMAN. It asks the President to deal with the diplomatic questions.

Mr. SPARKMAN. Yes; all that that Mr. Lorimer has been discussing here would come up before that commission, would it not?

The CHAIRMAN. Yes, for final settlement; but for a temporary settlement, no.

Mr. SPARKMAN. We could not deal with the Canadian side at all.

Mr. LORIMER. We can control it.

Mr. SPARKMAN. We can control it by saying that they shall not use the power on this side; that would have the effect for the present; I don't know about the future.

The CHAIRMAN. There is another question I would like to ask Colonel Ernst, and I wish it distinctly understood that this does not forecast any possible action of the committee when making a recommendation for a bill. Would friction be created in case the 8,600 cubic feet additional were granted to the Niagara Falls Power Company; would the Canadian commissioners object to that?

Colonel ERNST. I can not say as to that whether they would object or not. They accepted our figures. We presented these figures first in that report which was published some weeks ago, and they have accepted those.

The CHAIRMAN. Such action as that would involve another meeting and a readjustment of the recommendations?

Colonel ERNST. Yes, sir.

The CHAIRMAN. I believe that is all, Colonel Ernst, unless there are some other recommendations.

Colonel ERNST. This question of levels has come up, and I think the committee has been a little confused about it. - Here is the record for 46 years.

The CHAIRMAN. That is in the volume of the report for 1905?

Colonel ERNST. This shows the oscillation of the lake. That red line is the average level, 222,000 cubic feet a second. You see it has not got up there lately, although in former times it was way above it.

Mr. ALEXANDER. As I understand it, the years from 1897 to 1902 have been years of very low water?

Colonel ERNST. Yes; longer than that, from 1894.

Mr. ALEXANDER. From 1894 to when?

Colonel ERNST. To 1903, inclusive.

Mr. ALEXANDER. It has been very low water during that time?

Colonel ERNST. Yes. It has not been up to the average at all during those years.

Mr. ALEXANDER. In your opinion what has caused that low stage of water during those nine years?

Colonel ERNST. Difference in rainfall.

Mr. DAVIDSON. During that same period Lake Superior has shown a higher average than it did before.

Colonel ERNST. Yes; you see how it has gone [indicating on map]. That will account somewhat for the difference in the estimates of the discharge here [indicating on map].

(Thereupon, at 12.15, the committee went into executive session, and at the conclusion of which it adjourned.)

APPENDIX A.

[House Report No. 695, Fifty-ninth Congress, first session.]

Mr. BURTON, of Ohio, from the Committee on Rivers and Harbors,
submitted the following

REPORT.

[To accompany H. J. Res. 83.]

The Committee on Rivers and Harbors, to whom was referred the House joint resolution (H. J. Res. 83) calling upon members representing the United States upon the International Commission, created by section 4 of the river and harbor act of June 13, 1902, to report to Congress upon such action as in their judgment is necessary and desirable to prevent the further depletion of water flowing over Niagara Falls, and also directing them to exert all possible efforts, in conjunction with the members of the commission representing the Dominion of Canada, if practicable, for the preservation of the falls in their natural condition, would respectfully report, recommending that the resolution be adopted.

Numerous petitions have been referred to this committee protesting against the use of the waters of Niagara River for power purposes. The opposition manifested to the promotion of material interests at the cost of the scenic grandeur of Niagara Falls has been so vigorous and so general as to cause the President to direct attention to the subject in his message, and also to justify action by Congress. It has been alleged that the utilization of the waters under privileges already granted may cause the cataract on the American side to disappear entirely.

The members of the committee regard this resolution as the most practical and efficient step to be taken at this time to prevent further injury. The commission referred to was created by the river and harbor act of 1902. It consists of three members from the United States, who act in connection with an equal number from Canada. The members were chosen to investigate the conditions and uses of the waters adjacent to the boundary line between the United States and Canada, including the waters of the lakes and rivers whose natural outlet is by the river St. Lawrence to the Atlantic Ocean.

In the creation of this Commission it was recognized that problems pertaining to the waters of the Great Lakes and connecting waters must be international in their character. The members of the Commission, both from the United States and Canada, have had under consideration the subject of waters on the international boundary line, including the uses of the water in Niagara River at the falls. It is believed that the Canadian commissioners will join with those from the United States in recommending such measures as will secure the object sought, and that a report can be made at an early date which will enable Congress to act intelligently in the premises.

APPENDIX B.

[Senate Report No. 1611, Fifty-ninth Congress, first session.]

Mr. BRANDEGEE, from the Committee on Forest Reservations and the Protection of Game, submitted the following

REPORT.

[To accompany H. J. Res. 83.]

The Committee on Forest Reservations and the Protection of Game, to whom was referred the joint resolution (H. J. Res. 83) for a report upon the preservation of Niagara Falls, report the same favorably without amendment and recommend its adoption.

A similar Senate resolution, to wit, S. R. 24, has been reported to the Senate by the Committee on Foreign Relations. In view of the great public interest manifested in the protection of Niagara Falls from injury of any kind, it is necessary that early action should be taken. The object of both the resolutions referred to is to ascertain what the actual conditions are at Niagara Falls and to pass such legislation as may be necessary to protect the falls. S. R. 24 requests that the President invite the Government of Great Britain to join in the formation of an international commission for this purpose. House Joint Resolution 83 requests a commission, which is already in existence, to furnish this information. The river and harbor act, which was approved June 13, 1902, contained a provision for an international commission, composed of representatives from the United States and Canada, to investigate the conditions and uses of the waters adjacent to the boundary line between the United States and Canada.

Soon after the passage of the act an invitation was extended to the Government of Great Britain to join in the formation of a commission, which was accepted in the summer of 1903. The American members of the commission were appointed October 2, 1903. They are Col. O. H. Ernst, Corps of Engineers, U. S. Army; Mr. George Clinton, of Buffalo, N. Y., and Prof. Gardner S. Williams, of Ithica, N. Y. The Canadian members are Mr. W. F. King, chief astronomer, of Ottawa; Mr. J. P. Mabec, K. C., of Toronto, and Mr. Louis Coste, of Ottawa. The Canadian commissioners were not appointed until January, 1905. Owing to this fact the commission did not begin its labors until that year. The first meeting of the full commission was held in Washington, D. C., on May 25, 1905.

The process of creating a joint commission, composed of members from different countries, is necessarily a slow and tedious method, and

this is shown very clearly by the fact that the existing commission, which was authorized in 1902, was not able to hold its first meeting until 1905, a little more than three years after its creation. The annual report of the Secretary of War for the year 1905, on page 321, section 23, states:

Since it completed its organization in September the commission has made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls and to the regulation of the level of Lake Erie by works near its outlet. With reference to the former, although not ready to report, it thought proper to pass, at its session of October 28, the following resolution, of which copies were sent to the Secretary of War of the United States and the minister of public works of Canada, viz:

"Resolved, That this commission recommends to the Governments of the United States and Canada that such steps as they may regard as necessary be taken to prevent any corporate rights or franchises being granted or renewed by either Federal, State, or provincial authority for the use of the waters of the Niagara River for power or other purposes until this commission is able to collect the information necessary to enable it to report fully upon the 'conditions and uses' of those waters to the respective Governments of the United States and Canada."

On page 315 of the same report of the Secretary of War appears the report of the International Waterways Commission as to the progress it has made in the performance of its duties. In view of the foregoing considerations it would seem preferable that the Senate should pass the resolution which has already been passed by the House of Representatives, and call upon the existing commission, which already is possessed of the information desired and can furnish the same, therefore, without expense, at an early date, than to adopt the proposed Senate resolution, which proposes to create a new commission, entailing further diplomatic negotiations and the expenditure of much time and some expense.

As bearing upon the subject under discussion, copies of certain documents are printed herewith. They are as follows: A communication from Hon. Theodore E. Burton to Senator Brandegee; a communication from the Merchants' Association of New York to Senator Brandegee; a petition for the negotiation of a treaty to preserve Niagara Falls, by the American Civic Association and the Merchants' Association of New York, to the President of the United States; a communication from the Attorney-General of the United States to the President of the United States, dated October 14, 1905; a communication from the Attorney-General of the United States to the Merchants' Association of New York, dated December 28, 1905; a communication from the Secretary of War to the President of the Merchants' Association of New York, dated January 27, 1906; a communication from the Hon. John W. Griggs, formerly Attorney-General, to the Merchants' Association of New York, dated January 31, 1906.

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Washington, D. C., February 14, 1906.

MY DEAR SENATOR: I inclose data in regard to the Niagara Falls resolution. There is an excellent article on the subject by Charles M. Dow, president of the commission of the State reservation at Niagara, published in the February Outlook, of which I will send you a copy. Among numerous articles this gives the situation in the most concise form and with the most accurate statement.

I regret that I have been delayed somewhat in sending this to you because of press of work. I hope the statement transmitted herewith will give you all necessary information. The important point, as it seems to me, is that further diversion of

the water, as well as the correction of any errors which may have already been made, can be best accomplished by international agreement between the United States and Great Britain, representing Canada. The commission to which I have referred is the best organization to furnish necessary information in regard to existing conditions and the necessary steps to be taken.

Will deliver data to you in the Senate to-morrow.

The progress report of the Waterways Commission is on page 50 of the report of the Secretary of War for 1905, also pages 315 to 329; reference to Niagara Falls, page 321.

Yours, very respectfully,

T. E. BURTON.

HON. FRANK B. BRANDEGEE,
United States Senate.

THE MERCHANTS' ASSOCIATION OF NEW YORK,
February 16, 1906.

DEAR SIR: Congressman Burton informs us that you will take charge in the Senate of the measure for causing the International Waterways Commission to investigate and report upon the diversion of the waters of Niagara River.

This subject has recently been presented to the President by this association, in conjunction with others, and the President has directed the Secretary of State to open negotiations with Great Britain for a treaty. Mr. Burton requests that we give you as much information on the subject as possible, and we therefore inclose herewith copy of opinions by Attorney-General Moody and former Attorney-General Griggs and letter from Secretary Taft, as well as a copy of the petition filed with the President.

It is, of course, essential to the purposes of a treaty that full inquiry into the facts should be made, and the extension of the powers of the International Waterways Commission is therefore of the first importance. It is equally important that that commission should be supplied with the necessary funds. We have seen Secretary Taft in regard to it and he has agreed to make specific application to Congress for the necessary appropriation.

Trusting that your pending measure will promptly be approved by the Senate, we remain,

Very truly, yours,

THE MERCHANTS' ASSOCIATION OF NEW YORK,
By FREDERICK B. DE BERARD.

HON. FRANK B. BRANDEGEE,
United States Senate, Washington, D. C.

PETITION FOR THE NEGOTIATION OF A TREATY TO PRESERVE NIAGARA FALLS.

THE PRESIDENT:

SIR: Your petitioners respectfully pray that you will exercise the power devolved upon you by the Constitution in moving for the negotiation with the Government of Great Britain of a treaty having for its purpose the preservation of all the natural scenic features of the Falls of Niagara by prohibiting or duly restricting the diversion of the waters of the Niagara River above the Falls.

Your petitioners have been advised by eminent counsel:

That the jurisdiction of the United States over the waters of the Niagara River is superior to that of the State of New York;

That upon the exercise of the powers inhering in the United States jurisdiction by the State of New York will thereupon cease;

That for the effective protection of the waters of the Niagara River a treaty or convention between the United States and Great Britain is necessary; and

That the negotiation of such treaty or convention is within your discretion, and is in no wise contingent upon previous action either by the Congress or by the legislature of the State of New York.

Attorney-General Moody, writing you under date of October 14, 1905, in response to inquiry made by you consequent upon a resolution of the American Civic Association, said:

"As to the ground for Federal intervention, so far as proposed, I think there can be no fair doubt. * * *

"The character of Niagara Falls as one of the greatest natural wonders, its situation in a boundary river on the frontier of a foreign country, its undoubted historical relation as a natural possession and common heritage—all these elements in the case would fully justify you in proposing, through the ordinary diplomatic channels, the consideration of this subject by the two governments immediately concerned."

Again, under date of December 28, 1905, Attorney-General Moody, in a letter to the Merchants' Association of New York, reiterated:

"* * * On considerations of the general welfare and the highest public concern, and because of this peculiar relation of the Niagara River, as well as its navigability in large part, there could be no doubt of the Federal interest and power."

Hon. John W. Griggs, former Attorney-General of the United States, in a formal opinion given to the Merchants' Association of New York, said:

"Whatever jurisdiction the State of New York has over the waters of the river and their use is subject and subordinate to the power of the National Government in two respects:

"First. With respect to navigation, as to which the laws of Congress are supreme.

"Second. As to the subject of boundary between this nation and Canada, in respect to which the United States and Great Britain have the right by treaty stipulation to impose such conditions and regulations upon the use of the river and its waters as they deem mutually proper. A treaty duly negotiated between these two powers and ratified by the Senate of the United States would be the supreme law of the land, and if in such treaty it were provided that no such use of the waters as is contemplated should be hereafter made, and this regulation was enforced by act of Congress, the treaty and the legislation would be valid, the rights of the State of New York and all private riparian owners to the contrary notwithstanding.

"* * * It is, in my judgment, necessary, in order that full and complete control of this subject may be obtained by the two powers, that an international agreement in the form of a treaty should be made. Such a treaty would involve no infraction of or trespass upon the rights of the State of New York, because its rights, as above stated, are subordinate to the superior jurisdiction of the nation with respect to the stream as a navigable river and as an international boundary."

Senator P. C. Knox, of Pennsylvania, also formerly Attorney-General of the United States, has also concurred in the positions taken in the foregoing opinions, further taking the position that inasmuch as the diversion of water above the Falls of Niagara occurs in a stream through which passes an international boundary, action in regard to this diversion can only be properly instituted through diplomatic channels, it not being within the power of Congress to institute such action.

Several resolutions now pending before the Congress propose inquiry into the diversion of the waters of the Niagara River, and a very considerable number of letters received from members of Congress by the signatory associations and their members indicate that the legislation necessary to make effective the stipulations of a treaty would receive prompt and favorable consideration.

Of the several bills pending in the legislature of the State of New York, some seek the forfeiture of the various charters affecting those waters and others pray the intervention of the United States for their protection; but we respectfully submit that it is evident, from the opinions cited above by three eminent legal authorities, each of whom has been the chief official legal adviser of the United States Government, that action for the preservation of Niagara to be effective must be initiated by you through diplomatic channels.

That the authorities of the Canadian government are ready to cooperate is evidenced by a letter from the prime minister of the Dominion of Canada to the president of the American Civic Association under date of January 31, 1906, in which Sir Wilfred Laurier says:

"No communication has ever been received by the Canadian government from anyone connected with the Government of the United States on the subject discussed in your letter, but we will be ready to discuss it at any time that the matter is brought to our attention and our cooperation invited."

In your message to the first session of the Fifty-ninth Congress you said: "Nothing should be allowed to interfere with the preservation of Niagara Falls in all their beauty and majesty;" a feeling in which your petitioners believe the vast majority of the citizens of the United States heartily concur. Your petitioners therefore earnestly pray that you will speedily take the steps necessary to bring the waters of the Niagara River under the jurisdiction of an international agreement as the only effective means of protecting Niagara Falls against destruction.

Very respectfully,

THE AMERICAN CIVIC ASSOCIATION,

By J. HORACE MCFARLAND, *President*.

THE MERCHANTS' ASSOCIATION OF NEW YORK,

By CLARENCE WHITMAN, *President*.

DEPARTMENT OF JUSTICE, October 14, 1905.

The PRESIDENT.

SIR: Replying to your note of October 6, in which you ask my views respecting an inclosed resolution of the American Civic Association, I beg to advise you informally as follows:

The resolution sets forth the ordinance of Congress of 1787, which provided that "the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever free, * * * to the citizens of the United States," and then, declaring that the preservation of Niagara Falls is a matter of general and vital concern, and that the wanton destruction of the Falls is imminent as a result of action taken by the New York legislature in contravention of the rights and violation of the welfare of the people, the Association urges you, in conjunction with the governor-general of Canada, to appoint a joint commission to consider and report upon immediate measures to avert the impending disaster.

It appears that for some years, both on the American and the Canadian side, power plants have been established under charters from the State of New York or the Dominion or provincial government of Canada, respectively, by which, necessarily, the amount of water flowing over the cataract on either side is diminished to some extent. I am not aware of any recent grant of franchises on the American side, and am informed that in a late effort to obtain additional or enlarged franchises it became evident that the people and the legislative authorities of the State of New York were firmly opposed to any increase whatever of such rights or consequent diminution of the volume of water in the stream above the Falls. I am not informed how the situation is in this respect on the Canadian side.

On the one hand, it is asserted by competent and reliable observers living in the neighborhood—that is, at Buffalo—that so far as the American falls at least are concerned, the use of the water for power purposes up to the present and under existing charters does not cause a subtraction from the volume flowing over the falls so as to affect the beauty of the cataract itself to any appreciable degree; and that an east wind blowing up Lake Erie diminishes the flow of water more than it is diminished by a subtraction of all that the power companies have thus far taken. In other words, the eye can not detect any difference in the amount of water going over the falls now and the amount going over before any of the power plants were constructed. But it is also true, I am informed, that under present franchises a greater amount of water may still be subtracted, and doubtless a limit should be fixed by due authority, and very likely no further franchises should be granted.

As to the ground for Federal intervention, so far as proposed, I think there can be no fair doubt. Strictly, of course, since the water withdrawn from the river above the falls is taken below the farthest navigable point on that side and is returned to the river (subject to a negligible amount of waste) below the falls above its navigable portion on that side, the equal and free rights in the stream as a navigable waterway in the Great Lakes system which were assured by the ordinance of 1787 are not at all imperiled. Nevertheless, I think that the character of Niagara Falls as one of the greatest natural wonders, its situation in a boundary river on the frontier of a foreign country, its undoubted historical relation as a natural possession and common heritage, all these elements in the case would fully justify you in proposing through the ordinary diplomatic channels the consideration of this subject by the two Governments immediately concerned.

The proposal is that a commission should be appointed to consider and report upon immediate measures for the preservation of the cataract. It may well be that the subject can be effectively considered by the two Governments without the formal appointment of a commission. If, however, a commission should be deemed desirable by you, I would respectfully suggest that the matter be brought to the attention of Congress and the authority obtained for the appointment of such a commission. Possibly the same result might be reached by extending the authority of the existing Waterways Commission.

Very respectfully,

_____,
Attorney-General.

The PRESIDENT,

The White House.

DEPARTMENT OF JUSTICE,
Washington, December 28, 1905.

SIRS: I beg to say that I have received and considered your letter of December 22, relating to the preservation of Niagara Falls. As you will understand, I am not permitted under the law to give you an opinion on the legal questions raised in your letter.

You are in error in thinking that there is a conflict between the views expressed by the President in his message on this subject and those suggested in my informal letter of advice to the President. I merely counseled him that international consideration and agreement on this subject were desirable and necessary, and that he was fully authorized to invite concert of action with the British Government as representing the Dominion of Canada.

As illustrating the logic of the case, necessitating some joint action, I referred to the patent fact that, apart from the question of the navigability of Niagara River, excepting just above and just below the falls, it is itself a boundary between the United States and Canada. I therefore suggested the view that, on considerations of the general welfare and the highest public concern and because of this peculiar relation of the Niagara River as well as its navigability in large part, there could be no doubt of the Federal interest and power. Of course there is no settled ruling on the subject, and no authorities clearly sustaining the idea of any exclusive Federal control, and the principle was suggested simply in order to show that the President would be on firm ground in initiating correspondence with the British authorities on the subject.

There can be little question that the State of New York has the immediate interests, rights, and powers in the premises. What the proper delimitation is between the State and the nation, and this nation and a neighboring power, is a matter for study, negotiation, and judicial exposition. As to the international aspect, the question is, how the two governments can act in concert to prevent injury to the natural wonder, rather than what the delimitation of jurisdiction between them is. The latter point is, of course, well settled by established rules as to boundary waters, carried into practice by actual agreements and surveys.

In other words, I have not attempted to do more than indicate that without denial of the initial rights and functions of the State, there is a great unsettled question here of the nature and scope of the Federal power. I have not attempted to settle it, and manifestly I shall not do so. It is to be assumed that the movement of public opinion and action in the State, to which you refer, will converge in a beneficent intent and object with the similar movement of the nation at large and of the Canadian government.

I may, however, mention the fact that the members of the American section of the International Waterways Commission have urged that no further corporate rights or franchises be granted or renewed by either Federal, State, or provincial authority for the use of the waters of the Niagara River for power or other purposes, until the commission is able to report fully upon the conditions and uses of those waters to the respective governments of the United States and Canada (Report Secretary of War for 1905, p. 321). Relative to the nature of the Niagara River as straight or navigable water or boundary water, respectively, I may refer you to the following New York cases: *Kingman v. Sparrow*, 12 Barb., 201, 205; *Hensler v. Hartman*, 16 Abbott's New Cases, page 176, note; *Matter of State Reservation at Niagara*, Id., 159, 185-188.

In accordance with your request, I inclose a copy of my letter of October 14 last to the President.

Respectfully,

WILLIAM H. MOODY,
Attorney-General.

The MERCHANTS' ASSOCIATION OF NEW YORK,
346 Broadway, New York, N. Y.

WAR DEPARTMENT,
Washington, January 27, 1906.

DEAR SIR: I beg to acknowledge the receipt of your inquiry of the 22d ultimo, in respect to the jurisdiction exercised by this Department over the falls in the Niagara River.

Certain powers in respect to the navigable waters of the United States are vested in Congress by the commerce clauses of the Constitution; and a very limited delegation of the powers so conferred has been vested by Congress in the Secretary of War, extending to the establishment of wharves, dams, bridges, and the like, in such waters, and to the removal of certain obstructions therefrom, together with the power to prevent such a diminution in the volume or flow of particular bodies of water as will impair their usefulness for purposes of navigation.

Although the power to determine whether certain waters are or are not navigable is vested in the courts and in Congress and is not ordinarily a matter for executive determination, it may, I think, be safely assumed that the Niagara River in the

immediate vicinity of the falls is not navigable, certainly not between Echota and Lewiston, a distance of about 7 miles; so that for that distance the river may be regarded as withdrawn from Executive jurisdiction, unless it be shown that the water taken from the stream above the falls for power purposes diminishes the flow below the rapids, where the river is again used for purposes of navigation. It is assumed that the water which flows through the generators of electric power is returned to the stream in the immediate vicinity of the falls.

If this be the case (and the question is one of fact which is susceptible of easy determination), I know of no authority of law by which the Department can effectively interpose to prevent the diversion of the water from the purposes to which it is now being applied. If, on the other hand, there is such a diversion of the flow of the stream as is calculated to diminish its navigable capacity, and the fact of such diminution can be satisfactorily established, I am prepared to take the matter under advisement with a view to the application of an appropriate remedy.

I am fully in sympathy with the efforts that are now being put forth to preserve the falls from destruction, and will be glad to recommend such legislation to Congress as may be calculated to accomplish so laudable a purpose.

Very truly, yours,

WM. H. TAFT.

The PRESIDENT OF THE MERCHANTS' ASSOCIATION OF NEW YORK,
346 Broadway, New York City.

NEW YORK, January 31, 1906.

GENTLEMEN: You have asked for my opinion as to the jurisdiction and power of the United States over the use of the waters of Niagara River, above and below the Falls of Niagara, at points where it is contemplated by various interests to take water from the river for power or commercial purposes, returning it again lower down the stream.

In view of your desire to have my opinion for use to-morrow, I can not do more at this time than to indicate the results at which I have arrived, leaving it for a future time to formulate more fully the reasons and principles which govern the subject.

Niagara River is the boundary between the United States and the Dominion of Canada, the latter being subject to the national control of the Kingdom of Great Britain. For purposes of ordinary domestic jurisdiction the river on this side to the center line thereof is under the jurisdiction of the State of New York. The courts of New York have held that the soil of the river between low water mark and the middle of the stream is in the State and not in any private individual. (Matter of State Reservation at Niagara, 16 Abbott's New Cases, 395.)

Whatever jurisdiction the State of New York has over the waters of the river and their use is subject and subordinate to the power of the National Government in two respects:

First. With respect to navigation, as to which the laws of Congress are supreme.

Second. As to the subject of boundary between this nation and Canada, in respect to which the United States and Great Britain have the right, by treaty stipulation, to impose such conditions and regulations upon the use of the river and its waters as they deem mutually proper. A treaty duly negotiated between these two powers and ratified by the Senate of the United States would be the supreme law of the land, and if in such treaty it were provided that no such use of the waters as is contemplated should be hereafter made and this regulation were enforced by act of Congress, the treaty and the legislation would be valid, the rights of the State of New York and all private riparian owners to the contrary notwithstanding.

You will observe that the rule last stated is in harmony with that suggested in the letter of the Attorney-General to the Merchants' Association of December 28, 1905.

It may be observed that Congress so far in its legislation upon the subject of navigable waters, in respect of which the United States has jurisdiction, has only gone to the extent of forbidding obstructions to the "navigable capacity" of such waters, and, therefore, an obstruction to a boundary stream which did not interfere with the "navigable capacity" of the waters would not be within the jurisdiction of the War Department under present legislation nor subject to injunction under a bill in equity. Of course any diversion of water from the Canada side would be beyond the jurisdiction either of the Secretary of War or the courts of the Union. It is, in my judgment, necessary, in order that full and complete control of this subject may be obtained by the two powers, that an international agreement in the form of a treaty should be made. Such a treaty would involve no infraction of or trespass upon the rights of

the State of New York, because its rights, as above stated, are subordinate to the superior jurisdiction of the nation with respect to the stream as a navigable river and as an international boundary.

An interesting decision of the Supreme Court of the United States relative to the Rio Grande River, the boundary between the United States and Mexico, is that of *United States v. Rio Grande Irrigation Company* (174 U. S., 690).

Very respectfully,

JOHN W. GRIGGS.

The MERCHANTS' ASSOCIATION, *New York.*

APPENDIX C.

[Senate Document No. 242, Fifty-ninth Congress, first session.]

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES,

TRANSMITTING

THE REPORT OF THE AMERICAN MEMBERS OF THE INTERNATIONAL WATERWAYS COMMISSION, WITH LETTERS FROM THE SECRETARY OF STATE AND THE SECRETARY OF WAR INCLUDING MEMORANDA REGARDING THE PRESERVATION OF NIAGARA FALLS.

MARCH 27, 1906.—Read; referred to the Committee on Foreign Relations and ordered to be printed.

To the Senate and House of Representatives:

I submit to you herewith the report of the American members of the International Waterways Commission regarding the preservation of Niagara Falls. I also submit to you certain letters from the Secretary of State and the Secretary of War, including memoranda showing what has been attempted by the Department of State in the effort to secure the preservation of the falls by treaty.

I earnestly recommend that Congress enact into law the suggestions of the American members of the International Waterways Commission for the preservation of Niagara Falls, without waiting for the negotiation of a treaty. The law can be put in such form that it will lapse, say in three years, provided that during that time no international agreement has been reached. But in any event I hope that this Nation will make it evident that it is doing all in its power to preserve the great scenic wonder, the existence of which, unharmed, should be a matter of pride to every dweller on this continent.

THEODORE ROOSEVELT.

THE WHITE HOUSE, *March 27, 1906.*

DEPARTMENT OF STATE,
Washington, March 24, 1906.

DEAR MR. PRESIDENT: I return the letter of the Secretary of War with the report of the American members of the International Waterways Commission, regarding the preservation of Niagara Falls.

I think the legislation recommended by the Commission would be very useful.

Faithfully yours,

ELIHU ROOT.

WAR DEPARTMENT,
Washington, March 20, 1906.

MY DEAR MR. PRESIDENT: I herewith transmit, for submission by you to Congress, the report of the American members of the International Waterways Commission, made by them in accordance with the joint resolution approved March 15, 1906, and set out in their report. The recommendations of the Commission of legislation necessary and desirable to prevent the further depletion of water flowing over the Niagara Falls suggests the question whether such legislation is within the limitations of the legislative power of Congress, when applied to nonnavigable parts of a stream which is within the borders of a State and which is only partly navigable, if the use of the water to be inhibited does not affect navigation in the navigable part of the stream below. It would seem that the treaty power exercised by the President and Senate with respect to a stream which forms the boundary between this country and another, would be subject to less limitation in this regard than the legislative power of Congress, and therefore that it might be more advisable to effect the result sought by Congress through a treaty than through a statute.

Very respectfully,

WM. H. TAFT,
Secretary of War.

The PRESIDENT.

**REPORT OF THE AMERICAN MEMBERS OF THE INTERNATIONAL WATERWAYS
COMMISSION REGARDING THE PRESERVATION OF NIAGARA FALLS.**

INTERNATIONAL WATERWAYS COMMISSION,
OFFICE OF CHAIRMAN AMERICAN SECTION,
Washington, D. C., March 19, 1906.

SIR: 1. The American members of the International Waterways Commission have the honor to submit for transmittal to Congress this report, in compliance with the following joint resolution approved March 15, 1906:

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the members representing the United States upon the International Commission created by section four of the river and harbor act of June thirteenth, nineteen hundred and two, be requested to report to Congress at an early day what action is in their judgment necessary and desirable to prevent the further depletion of water flowing over Niagara Falls; and the said members are also requested and directed to exert, in conjunction with the members of said Commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of the said Niagara Falls in their natural condition.

2. The surplus waters of Lake Erie are discharged through the Niagara River into Lake Ontario, the mean level of Lake Erie being 572.86 feet and that of Lake Ontario being 246.61 feet above the sea. Leaving Lake Erie at Buffalo, the river is navigable and flows with a moderate slope to a short distance below Welland River, or Chipewaga Creek, about 19 miles, in which distance it has a fall of about 14

feet. The slope here is suddenly increased and the river ceases to be navigable. In the next half mile it has a fall of about 50 feet, forming the rapids above the falls. It is divided by Goat Island into two arms of unequal size, that on the Canadian side carrying about seven times the volume of water carried by that on the American side. At the foot of Goat Island the waters of both arms plunge over a vertical precipice, constituting Niagara Falls proper, that on the Canadian side being usually known as the Horseshoe Fall, and that on the American side as the American Fall. The height of the Horseshoe Fall is about 161 feet, and that of the American Fall 165 feet. Immediately below the falls the river is again navigable for a short distance, and then assumes the character of rapids as far as Lewiston, 7 miles from Lake Ontario, where it again becomes navigable and remains so until it enters the lake.

3. The volume of water flowing varies with the level of Lake Erie, which level is subject to variations of several feet, depending upon the rainfall, barometric pressure, and direction and force of the wind. At the mean level of the lake (elevation 572.86) the volume of discharge is 222,400 cubic feet per second. At a very low stage (elevation 571) the volume is 180,800. (See Annual Report, Chief of Engineers, U. S. Army, for 1900, p. 5361.) For short periods in midwinter, or with prolonged adverse winds, it has sometimes been even less.

4. It is the great volume of water in the falls themselves and in the rapids which makes the place unique. The tremendous display of power in wild turbulence fascinates the mind, and gives to the question of Niagara's preservation a national interest.

5. The local authorities on both sides of the river have recognized their responsibilities in this matter, but have taken somewhat different views as to what these responsibilities are. As long ago as 1883 the State of New York provided for the acquisition of the lands in that State adjoining the falls, with a view to creating a public park, and in 1885 it declared that these lands "shall forever be reserved by the State for the purpose of restoring the scenery of the Falls of Niagara to and preserving it in its natural condition; they shall forever be kept open and free of access to all mankind without fee, charge, or expense to any person for entering upon or passing to or over any part thereof." A commission of five was created to carry out the purposes of the act. The State reservation now includes 412 acres, part of which is under water, and an annual appropriation of some \$25,000 is made for its care and maintenance. The commission has no jurisdiction beyond the limits of the reservation, but it has never throughout its existence failed to protest and bring all its influence to bear against the depletion of the falls by the abstraction of water above and beyond the limits of the reservation. Nevertheless, the State legislature has granted numerous franchises for the diversion of water, as will appear further on.

6. Soon after the creation of the New York State reservation a public park was created on the Canadian side, called the Queen Victoria Niagara Falls Park, and was placed under the control of five commissioners. This park now extends practically the whole length of the Niagara River from Lake Erie to Lake Ontario, and embraces an area of about 734 acres. By an act of the Ontario legislature (62 Victoria, chap. 11), it was enacted that "The said commissioners, with the approval of the lieutenant-governor in council, may enter into an

agreement or agreements with any person or persons, company or companies, to take water from the Niagara River or from the Niagara or Welland rivers at certain points within or without the said park for the purpose of enabling such person or persons, company or companies, to generate within or without the park electricity, or pneumatic, hydraulic, or other power conducting or discharging said water through and across the said park or otherwise in such manner, for such rentals, and upon such terms and conditions as may be embodied in the agreement or agreements and as may appear to the lieutenant-governor in council to be in the public interest." In 1903 this act was amended by adding thereto the words "but no such agreement shall be operative unless and until ratified and confirmed by the legislative assembly" (3 Edward VII, chap. 7). Inasmuch as the park receives no aid from the legislature in the way of annual appropriations for its support, the commissioners have felt justified in using with some freedom the power thus granted in order to obtain a revenue for the general improvement and maintenance of the park. Prior to the amendment of 1903 they entered into four important agreements for the diversion of water, and caused an investigation to be made as to the availability of additional sites for power works. Two of these agreements were with a single corporation, which has thus far utilized only one.

7. The great water power available at Niagara Falls naturally attracted the attention of engineers at an early day, but it was not until it could be transmitted and used in the form of electricity that its development on a large scale became financially practicable. There are now five principal corporations engaged in furnishing or preparing to furnish electricity for commercial purposes, obtained from the water power, two of them located on the American and three on the Canadian side. A brief description of each is here given. A map showing their location is submitted herewith. It is to be remarked that none of the diversions have been sanctioned by the United States Government.

8. *I. Niagara Falls Hydraulic Power and Manufacturing Company.*—This company was organized in 1877 under the general laws of the State of New York. It purchased a canal which had been constructed before the civil war leading from Port Day, above the falls, through the city of Niagara Falls, to the edge of the cliff below the falls, where a grist mill had been established. (See map). The length of this canal was about 4,400 feet, its width 36 feet, and its depth 8 feet. A width of 70 feet and depth of 10 feet had been projected. In 1881 the company established its first station for supplying electricity for lighting, this being the first public distribution for commercial purposes of electricity derived from Niagara Falls. The increasing demand for electricity and the improved methods of transmitting it led to a steady development of the works of this company and to the establishment of others. In 1895 an important enlargement of the canal having been begun, the right of the company to take water from the river was questioned by the commissioners of the State reservation at Niagara. An opinion was obtained from the attorney-general of the State of New York (copy appended marked "A") in which it was held that the Niagara River is a navigable river in law, that the company had no right to increase the capacity of its canal, that it had no right to divert any water from the river, and that a diversion of water sufficient to diminish the flow over the falls was a nuisance and could be restrained.

The New York legislature thereupon passed an act (chap. 968, Laws of 1896), in which the right of the company "to take, draw, use, and lease and sell to others to use the waters of Niagara River for domestic, municipal, and sanitary purposes, and to develop power therefrom for its own use and to lease and sell to others to use for manufacturing, heating, lighting, and other business purposes, is hereby recognized, declared, and confirmed." No limit as to the time during which these rights were to exist was fixed, but the amount of water to be taken was limited to that which could be drawn by a canal 100 feet wide, with such depth and slope as would maintain at all times a depth of 14 feet. The amount of water thus described is not specific. It is computed to be about 9,500 cubic feet per second for the works now under construction, but it would be possible to construct works under different plans which would use a much greater quantity of water. The company is now using about 4,000 cubic feet per second. It is extending its works, and expects to develop about 134,000 horsepower, in addition to which its tenant companies will develop about 8,000 horsepower. It has paid nothing to the State for its privileges. A list of the more important industries which this company supplies with electricity is given in Appendix B. Its managers estimate that the power plant and the industries dependent upon it for power represent an investment of \$10,000,000.

9. *II. Niagara Falls Power Company.*—In 1886 the New York legislature granted a charter to a company called the "Niagara River Hydraulic Tunnel Power and Sewer Company of Niagara Falls," subsequently amended in 1886, 1889, 1891, 1892, and 1893. (See chapter 83, 1886; chapter 489, 1886; chapter 109, 1889; chapter 253, 1891; chapter 513, 1892; chapter 477, 1893.) In 1889 the name of the company was changed to "The Niagara Falls Power Company." It is authorized to take water sufficient to generate 200,000 horsepower, computed to be about 17,200 cubic feet per second. Its franchise is for fifty years from March 31, 1886. The location of its works is shown upon the map. Beginning about a mile above the falls a short intake canal is constructed nearly at right angles with the river shore. Upon each side of the canal deep pits are excavated in the rock, at the bottom of which are placed the turbines, and over which are placed the power houses. The water, after passing through the turbines, is carried off by a tunnel about 21 feet in diameter under the city of Niagara Falls to the lower river, a distance of about 7,000 feet. The company has in operation two power houses having a combined capacity of about 105,000 horsepower.

It is working the plant nearly to its full present capacity, using about 8,000 cubic feet per second, in addition to which one of its tenant companies is using about 600 cubic feet. It paid nothing to the State for its privileges, but is bound to furnish free of charge electricity for light and for power and also water for the use of the State in the State reservation at Niagara and the buildings thereon, when requested to do so by the commissioners of the State reservation. It distributes electric power over a wide area of territory and to a great variety of commercial interests in Niagara Falls, Tonawanda, Olcott, and Buffalo, in some cases over 35 miles distant. A list of the consumers dependent upon this company is given in Appendix C. The investment is stated by the managers to be over \$6,000,000 in the

power plant, and \$7,000,000 or \$8,000,000 in other industries established on its lands at Niagara Falls and dependent upon it.

10. *III. Canadian Niagara Power Company.*—This company is an allied company of the Niagara Falls Power Company just described. It was incorporated by an act of the legislature of the Province of Ontario in 1892, which also confirmed an agreement dated April 7, 1892, between the company and the commissioners for the Queen Victoria Niagara Falls Park. In 1899 an act was passed conferring upon those commissioners authority to modify this agreement and to make other agreements for the construction of power works, as specified above. The agreement was modified July 15, 1899, and June 19, 1901.

11. The company is authorized to construct certain works, which works will have a capacity of 110,000 horsepower, and by inference to take the quantity of water required for that purpose, although the agreement does not in terms limit the capacity of the works or the quantity of water. The amount required to supply the works which have been approved and are under construction is computed to be about 9,500 cubic feet per second. The location of the works is shown upon the map. They are of the same general type as those of its allied company on the American side. Water is taken from the river about a quarter of a mile above the falls through a short canal and fore bay and discharged through penstocks into turbines near the bottom of a deep wheel pit excavated in the solid rock, over which is placed the power house. After passing through the turbines, the water is carried off by a tunnel about 2,000 feet long, and discharged into the river below the falls. The works are not completed, and less than half of the generators have been installed, the quantity of water used thus far being about 2,600 cubic feet per second. They are operated in connection with those of the allied company on the American side. They represent an investment of several million dollars.

12. The company agrees to pay for its privileges an annual rental of \$15,000, for which it may generate 10,000 electrical horsepower or less; for all above 10,000 and under 20,000 horsepower it pays in addition to the above \$1 per annum for each horsepower; for all above 20,000 and under 30,000 it pays a further sum of 75 cents per annum for each horsepower; and for all above 30,000 it pays a still further sum of 50 cents per annum for each horsepower; that is to say, the annual rental for generating 30,000 horsepower will be \$32,500, and for generating 110,000 horsepower will be \$72,500.

13. The period for which the privileges are granted is fifty years from May 1, 1899, but the company is entitled, at its option, to three renewals of twenty years each, the rentals to be adjusted at the time of each renewal, if the lieutenant-governor in council so desires, and at the end of the third renewal the lieutenant-governor in council may require a still further renewal of twenty years; the entire period thus covered by the agreement being one hundred and thirty years.

14. *IV. Ontario Power Company.*—This company was incorporated by an act of the Dominion Parliament in 1887, and was empowered to take water from the Welland River, or Chippewa Creek, near its mouth at Chippewa—that is, indirectly from the Niagara River. On the 11th of April, 1900, it entered into an agreement with the park commissioners to construct works for that purpose, but before progressing far in the work of construction it changed its plans, and on the 28th of June, 1902, it made another agreement with the commis-

sioners, under which it is now working. It claims that the first agreement is still valid and may be utilized hereafter if the company so desires. Under the agreement of June 28, 1902, the company is authorized to construct works according to certain plans submitted, which works will have a capacity of 180,000 horsepower, and by inference to take the quantity of water required for that purpose, although the agreement does not in terms limit the capacity of the works or the quantity of water. The amount required to supply the works, which have been approved and are under construction, is computed to be about 12,000 cubic feet per second. The location of the works is shown upon the map. Water is taken from the river at Dufferin Island, about half a mile above the intake of the Canadian Niagara Power Company, or three-quarters of a mile above the falls, and after passing through an elaborate system of screens enters a gatehouse, and thence is transmitted through three underground conduits, each 18 feet in diameter, to a power house located near the foot of the cliff below the falls. The length of the pipe line to the nearest penstock is 6,180 feet, and to the most distant penstock about 1,000 feet more. The works, which represent an investment of several million dollars, are not completed, only about 2,000 cubic feet per second now being used.

15. The company agrees to pay for its privilege an annual rental of \$30,000, for which it may generate 20,000 electrical horsepower or less. For all above 20,000 and under 30,000 horsepower it pays, in addition to the above, \$1 per annum for each horsepower; for all above 30,000 and under 40,000 it pays a further sum of 75 cents per annum for each horsepower, and for all above 40,000 it pays a still further sum of 50 cents per annum for each horsepower; that is to say, the annual rental for generating 40,000 horsepower will be \$47,500, and for generating 180,000 horsepower will be \$117,500.

16. The period for which the privilege is granted is fifty years from April 1, 1900, but the company is entitled, at its option, to three renewals of twenty years each, and after the third renewal the lieutenant-governor in council may require a fourth renewal of twenty years, the rentals to be adjusted at each renewal, the entire period thus covered by the agreement being one hundred and thirty years.

17. *V. Electrical Development Company.*—On the 29th of January, 1903, the commissioners for the Queen Victoria Niagara Falls Park entered into an agreement with three citizens of Canada, subsequently transferred to "The Electrical Development Company of Ontario (Limited)" incorporated by act of the legislature of Ontario. (5 Edward VII. chap. 12.) Under this agreement authority was given to take from the Niagara River water sufficient to develop 125,000 electrical horsepower. The amount is computed to be 11,200 cubic feet per second. The location of the works is shown upon the map. Water is taken from the river about midway between the intakes of the Canadian Niagara Power Company and of the Ontario Power Company, or about half a mile above the falls. A gathering dam, about 750 feet long, extends out into the river obliquely upstream, designed to divert the required amount of water into the power house, which is located upon the original shore line. Under the power house is a wheel pit, excavated in the solid rock to a depth of 158 feet, at the bottom of which are placed the turbines. After passing through the turbines the water is conveyed by a tunnel to the base of the falls and discharged about midway between the Canadian and American

shores. The works are not completed, and no water is now being used. They represent an investment of several million dollars.

18. The company agrees to pay for its privileges an annual rental of \$15,000, for which sum it may generate 10,000 electrical horsepower or less; for all above 10,000 and less than 20,000 horsepower it pays, in addition to the above, \$1 per annum for each horsepower; for all above 20,000 and less than 30,000 it pays a further sum of 75 cents per annum for each horsepower; and for all above 30,000 it pays a still further sum of 50 cents per annum for each horsepower; that is, to say, the annual rental for generating 30,000 horsepower will be \$32,500, and for generating 125,000 horsepower will be \$80,000.

19. The period for which the privilege is granted is fifty years from February 1, 1903, but the same provisions are made for renewals as in the cases of the other companies, and the entire period covered by the agreement is thus one hundred and thirty years.

20. In the case of each of the Canadian companies the authorities reserve the right to require that one-half the power generated shall be supplied to places in Canada.

21. Water is diverted also by the Park Electric Railway, under authority of the commissioners, the quantity to be used under plans now in execution being estimated at 1,500 cubic feet per second, developing about 8,000 horsepower, while the actual present use is about 600 cubic feet per second.

22. In addition to the foregoing, six charters were granted by the New York legislature between the years 1886 and 1894 to corporations organized to take water from the Niagara River, but it is believed that all, with the possible exception of two, have expired by limitation. In one case, the Niagara, Lockport and Ontario Power Company, an act to renew passed the legislature in 1904, but was vetoed by Governor Odell in his message of May 14 of that year. The company, however, claims the rights granted under its original charter, and is constructing works for the distribution of electrical energy developed by other companies, but is not itself diverting water. Another corporation, the Niagara County Irrigation and Water Supply Company, has done some work, and claims that its charter has thus been preserved, but it has diverted no water. A list of these charters is given in Appendix D.

23. The Dominion of Canada has granted charters to two corporations in addition to those already mentioned organized to take water from the Niagara River for power purposes. It has chartered two other corporations, organized to take for power purposes water from Lake Erie which would naturally be tributary to the Niagara River. These companies have not finally developed their plans, and it is believed that their franchises are therefore not perfected, although all but one are still in force. In one case the charter has expired by limitation. The charters fix no limit to the amount of water which may be used. A charter was granted in 1889 by the province of Ontario to the Hamilton Cataract, Power, Light, and Traction Company. This company is using water from the Lake Erie level of the Welland Canal, which water would otherwise be tributary to the Niagara River. The volume now being used is estimated at about 1,800 cubic feet per second, and is to be increased. A list of these charters will be found in Appendix E.

24. The Chicago Drainage Canal, constructed under the authority of the State of Illinois, was designed to divert about 10,000 cubic feet per second of water which would naturally flow over Niagara Falls. It has not been fully completed, but it now has a capacity of about 5,000 cubic feet per second. The amount which it is actually diverting has thus far been limited by the Secretary of War to about 4,200 cubic feet per second. In addition to the foregoing, about 333 cubic feet per second of Lake Erie water is now taken for power purposes from the Erie Canal at Lockport.

25. Full and precise information concerning the plans and the legal rights of the companies which have not begun or completed their works has not been obtainable. In the cases of the corporations now furnishing or preparing to furnish electricity for commercial purposes, the franchises are vague as to the volume of water to be used, which is the feature of greatest interest here. We have computed the volumes from the available data, and have endeavored to make the figures conservative. It must be understood that these figures are fair approximations. In proceeding to an examination of the effect upon Niagara Falls of the works proposed, the subject is much simplified by considering only those companies which derive their water from the Niagara River itself, and that is the course here pursued. Any effects caused by these works will be exaggerated by the other works mentioned.

26. The total quantity of water to be taken from the river by works now authorized is:

	Cubic feet.
Niagara Falls Hydraulic Power and Manufacturing Company.....	9,500
Niagara Falls Power Company.....	17,200
Canadian Niagara Power Company.....	9,500
Ontario Power Company, not including Welland River Development.....	12,000
Electrical Development Company.....	11,200
Niagara Falls Park Railway Company.....	1,500
Total.....	60,900

Of this amount 26,700 cubic feet is to be taken on the American side and the remainder, 34,200 cubic feet, on the Canadian side. That is, 27 per cent of the average discharge and 33 per cent of the low-water discharge of the Niagara River will cease to pass over the falls when these works are completed and in full operation. The quantity to be diverted is more than double the quantity which now passes over the American Fall, which at the average stage is about 27,800 cubic feet. That this will in general have an injurious effect upon the falls seems self-evident. The volume of water to be diverted is about the equivalent of the entire discharge of Lake Superior over the Sault Ste. Marie. The amount thus far actually diverted is but 17,800 cubic feet per second, and has had an appreciable effect upon the falls. To foretell with accuracy the effects in detail of the full diversion authorized would require a more complete knowledge of the bed of the river than is now obtainable. The water taken on the Canadian side below the crest of the rapids will affect the Horseshoe Fall alone. If all that taken on the American side should affect the American Fall alone, it would practically leave it dry; but it seems probable that only a part of this diversion will be at the expense of the American Fall.

Exactly what portion that will be can not be stated with precision, but from a study of the channels and reefs, so far as they are known,

a reasonable estimate is that the water would come from the two arms in about the proportion of one-sixth from the American Fall and five-sixths from the Horseshoe Fall. Exactly what form the changes in the two cataracts will take, whether they will be made narrower, or be broken up into a greater number of streams, or simply be reduced in volume, retaining in general their present form, can not now be foretold, for the reason that there is no accurate knowledge of the form of and depth of water on the crests. If 60,900 cubic feet per second be diverted, the loss will be important, but if the diversion be limited to this amount, or reduced, as hereafter indicated, it may not prove disastrous. This can not be definitely determined until the works now under construction have been completed and put in operation. When that happens, if it be found that the falls have not suffered serious damage, as a scenic spectacle, it does not follow that additional water may be diverted with impunity. Additional diversion would be an experiment even more dangerous than that now being tried, and in our opinion should not be permitted.

27. In return for the impairment of the falls thus far authorized the State of New York will receive practically nothing for the 342,000 horsepower authorized on that side, and the Queen Victoria Niagara Falls Park will receive an annual rental of \$270,000, or an average of 65 cents per horsepower for the 415,000 horsepower authorized on the Canadian side. These figures do not include the 8,000 horsepower being developed by the electrical railway nor the power developed by the Hamilton Company with water from the Welland Canal.

28. If all the water and all the head from the top of the upper rapids to the foot of the falls could be utilized, there would result over 4,000,000 mechanical horsepower. Probably space could be found, if desired, for works which would utilize about half of this, or, say, 2,000,000 horsepower, or possibly more. As they could not utilize all the head, they would use much more than half the water. It will require time to create a market for all this power, but it is reasonably certain that it will in due season be found if the development of the power itself is to go on unchecked. The difference in cost in favor of falling water over any other method of developing power is so great that all other methods are sure to be abandoned where sufficient water power is available. The difference at Niagara Falls is probably not less than \$15 or \$20 per annum per horsepower. The cost of transmission to distant points increases with the distance, and finally becomes so great as to be unprofitable; but electrical engineers are engaged in improving the methods and reducing the cost. An average difference of cost for each horsepower can not now be given with any close degree of approximation, but the difference, whatever it is, is a perpetual annual saving, which, if capitalized, will show that the commercial value of the power at Niagara Falls is very great and is to be measured by the hundred millions of dollars.

29. Whether this commercial asset shall be utilized to such an extent as to seriously impair the majesty and scenic beauty of the falls depends upon the public will. In our opinion the commercial advantages of a large increase in development of power will not compensate for the great loss to the world of the inspiration, æsthetic education, and opportunity for recreation and elevating pleasure which the mighty cataract affords. The direct advantages to the public from revenue is nothing

on the New York side of the river, and comparatively slight on the Canadian side. There is of course an indirect advantage due to added taxable wealth and reduction in the cost of power, but these advantages are, in our opinion, slight in comparison with those which spring from the preservation of the beauty and majesty of the falls in their natural condition. Over 800,000 people visit the falls annually, deriving pleasure and inspiration from them. The nations of the world have always recognized the great value of parks and reservations, and throughout the civilized world they have preserved places of natural grandeur and beauty and furnished parks, artificially beautified, for rest, education, and the elevation of their people. An illustration may be given in the case of the city of New York, one of many hundreds. There the municipality has acquired, in Central Park, property which is estimated to be worth \$225,000,000, and has spent millions upon its improvement and ornamentation. The United States Government has reserved lands of striking picturesqueness, grandeur, and interest, regardless of their value. These illustrations would seem to prove conclusively that the people are not inclined to offset mere commercial values against the intangible but none the less great advantages found in the preservation of the great works of nature.

30. It is probably not expedient to attempt the recovery of the rights granted to companies which have taken full advantage of them. In the case of the Niagara Falls Power Company, on the American side, the franchise authorizes it to develop 200,000 horsepower. It has constructed works having about half that capacity, but has not begun the construction of the additional works, and we believe has no present intention of doing so. In the case of the Ontario Power Company, on the Canadian side, the construction of works under the agreement of April 11, 1900, has been indefinitely postponed. The authority for the additional works in both these cases could probably be withdrawn without inflicting an unreasonable hardship. All franchises of which advantage has not been taken should be extinguished.

31. The following is a summary of the foregoing statement of facts:

(a) The glory of Niagara Falls lies in the volume of its water rather than in its height, or in the surrounding scenery.

(b) Works are now authorized and partially completed at the falls which will divert from the Niagara River above the falls about 27 per cent of the average discharge, and about 33 per cent of the low-water discharge, which is more than double the quantity now flowing over the American Fall. In addition to this, water naturally tributary to the Niagara River is being diverted through the Chicago drainage canal, and for power in addition to navigation purposes through the Erie and the Welland canals.

(c) The effect of this withdrawal of water is to injure both the American and the Horseshoe falls in nearly equal proportions. While the injury will be perceptible, it may not be destructive or disastrous.

(d) Improvements in the transmission of electric power and increased demand will make a market for all the power which can be developed at Niagara Falls, and will cause a destruction of the falls as a scenic spectacle if the development be allowed to go on unchecked.

(e) Charters have been granted to corporations which propose to divert additional amounts in quantities not now limited.

(f) The sums of money invested, or being invested, in the works now in operation or under construction, and in the industries dependent upon

them, amount to many millions of dollars. It is probably not expedient to attempt the withdrawal of the rights thus utilized.

(g) The commercial value of the water power at Niagara Falls is very great, but if compared with values set aside by wealthy communities elsewhere for park purposes this value is not too great to be devoted to similar purposes. The place is visited annually by about 800,000 people.

32. If the falls are to be preserved it must be by mutual agreement between the two countries. As a step in that direction we recommend that legislation be enacted which shall contain the following provisions, viz:

(a) The Secretary of War to be authorized to grant permits for the diversion of 28,500 cubic feet per second, and no more, from the waters naturally tributary to Niagara Falls, distributed as follows:

	Cubic feet.
Niagara Falls Hydraulic Power and Manufacturing Company.....	9,500
Niagara Falls Power Company	8,600
Erie Canal or its tenants (in addition to lock service)	400
Chicago drainage canal	10,000

(b) All other diversion of water which is naturally tributary to Niagara Falls to be prohibited, except such as may be required for domestic use or for the service of locks in navigation canals.

(c) Suitable penalties for violation of the law to be prescribed.

(d) The foregoing prohibition to remain in force two years, and then to become the permanent law of the land, if, in the meantime, the Canadian government shall have enacted legislation prohibiting the diversion of water which is naturally tributary to Niagara Falls, in excess of 36,000 cubic feet per second, not including the amounts required for domestic use or for the service of locks in navigation canals. It is assumed, however, that an understanding upon this subject would be reached by treaty.

33. The object of such legislation would be to put a stop to the further depletion of the falls, and at the same time inflict the least possible injury upon the important interests now dependent upon this water power. The amount to be diverted on the Canadian side has been fixed with a view to allowing to the companies on that side the amounts for which they now have works under construction, which are:

	Cubic feet.
Canadian Niagara Power Company	9,500
Ontario Power Company	12,000
Electrical Development Company	11,200
Niagara Falls Park Railway Company	1,500
Welland Canal or its tenants (in addition to lock service)	1,800

34. One of the effects of such legislation would be to give to Canada the advantage of diverting 7,500 cubic feet per second more than is diverted in the United States. The advantage is more apparent than real, since the power generated on the Canadian side will to a large extent be transmitted to and used in the United States. In the negotiation of a treaty, however, the point should be considered.

35. The substance of this report was submitted to our Canadian colleagues before the passage of the joint resolution, with a view to uniting in a joint report under the general law providing for the Commission. There was a substantial agreement in the statement of facts, and such differences as developed with respect to the recommendations which ought to be made did not seem insuperable, but our colleagues desired

time for further consideration. We have no doubt of their sympathetic interest in carrying out that part of the instructions contained in the resolution which requires us "to exert in conjunction with the members of said Commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of Niagara Falls in their natural condition."

Very respectfully,

O. H. ERNST,
Colonel, Corps of Engineers, Chairman.

GEORGE CLINTON,
Member.

GEO. Y. WISNER,
Member, American Section.

The SECRETARY OF WAR,
Washington, D. C.

APPENDIX A.

STATE OF NEW YORK,
ATTORNEY-GENERAL'S OFFICE,
Albany, November 16, 1895.

DEAR SIR: Sometime ago the question of the right of the Niagara Falls Hydraulic Power and Manufacturing Company to enlarge the capacity of their canal, by which a portion of the water of the Niagara River is diverted for manufacturing purposes, was submitted to me for examination by you. The question is one involving great interests, not only to the corporation referred to, but to the State itself, and I have therefore considered it with a great deal of care before venturing to express an opinion.

The facts in the case may be briefly stated. The canal in question was originally constructed in the year 1859. Its dimensions were 70 feet wide by 14 feet deep. The inlet is at Port Day, about 1 mile above the falls, and it runs through a strip of land 100 feet wide to the mills on the bank of the river below the falls, where the waters, after supplying power to various industries, are discharged into the river.

About the year 1878 the title to the land in the 100-foot strip, as I am informed by Mr. Schoelkopf, of Niagara Falls, was acquired by the present owners, since which time the canal has been in active operation, and has supplied power to mills of a sufficient capacity to employ a large number of hands, residents of the city of Niagara Falls, and whose continued prosperity, to a very large degree, is dependent upon the operation of the mills in which they are employed. Sometime after the acquisition of title to the strip of land by the present owners they made application to the land commissioners of the State of New York for a grant of land under water adjoining the inlet to the canal.

In the papers submitted on that application it was stated to be the intention of the owners to increase the capacity of the canal, and thereby increase its production of horsepower. The grant was made by the commissioners with the condition that no structures were to be built upon the granted land without the consent of the Niagara Reservation Commission. Thereafter application was made to the reservation commission for leave to erect cribs on the land under water, the purpose of which was to prevent the flow of ice and other refuse into the canal, to the detriment of the interests of the Niagara Falls Hydraulic Power and Manufacturing Company.

The capacity of the canal at that time, if I am correctly informed, was 200,000 cubic feet per minute. No objection was made (at least publicly) to this diversion of the waters of the river at that time. Since then, however, various grants of privileges by the legislature of the State have been given to several corporations to divert the waters of the Niagara River for power purposes. In consequence of these grants apprehension has been created as to the probable effect upon the flow of water over the falls, and your commission, actuated by commendable zeal to protect the great natural beauty of the reservation, have determined that further encroachments upon the stream shall be prevented, if possible.

The law under which your board was created (chap. 336, Laws of 1883) states that the object of the creation of the commission was to preserve the scenery of the Falls of Niagara. It provides for the condemnation of the lands to be selected by the commission, and for the compensation to be paid to the owners of the property con-

demned. In carrying out the provisions of the law several million dollars have been expended by the State of New York, which will be converted into a mere waste of public moneys if the flow of water over these falls is to be seriously diminished.

While this is, of course, a very serious consideration, I have not permitted myself to lose sight of the importance to the industries dependent upon the maintenance of the canal for their power, which action on the part of the State authorities will have.

It is a very grave duty to be compelled to pass upon public questions wherein such great private interests are concerned. Nevertheless, it is one which I see no way to escape, and, while from certain considerations I would be pleased to arrive at a different conclusion, I am compelled to hold, from my examination of the law on the subject, that the Niagara Falls Hydraulic Power and Manufacturing Company may be restrained from increasing the capacity of the canal. It is only fair, however, that my reasons for this conclusion should be stated. They are as follows:

The Niagara River is a public navigable stream, to the bed of which, and the water flowing over it, the State and not the riparian owner has title.

It would be a waste of time to attempt to show why this proposition is correct. It is sufficient to say that it has been amply supported by judicial decisions and is now the established law.

Ill. C. R. R. Co. v. Ill. (146 U. S., 387).

Smith v. Rochester (92 N. Y., 479).

Matter of St. Reservation (16 Abb. N. C., 395).

The sole question, therefore, for determination is, "Can an owner of the soil adjoining a navigable stream divert the water for private manufacturing purposes without the consent of the State?" Let us examine it.

By the term "navigable," it must be remembered, is not meant "capable of being navigated." As used in this discussion, "navigable stream" means one which is navigable in the legal sense. Rivers may be navigable in fact but not in law, or they may be navigable in law but only in part navigable in fact. A mere local interruption of actual navigability, therefore, will not change the character of a stream in its legal aspect.

The river being navigable, in the legal sense, the title to the bed of the stream and to the water flowing over it is in the State, at least to the boundary line between the State and Canada.

People v. Appraisers (33 N. Y., 464).

Crill v. Rome (47 How. Pr., 398).

Morgan v. King (35 N. Y., 454).

People v. Tibbetts (19 N. Y., 523).

Ex parte Jennings (6 Cow., 518).

Therefore, leaving out of view for the present the grant of land under water to the Hydraulic Power and Manufacturing Company, the State could unquestionably deprive the corporation of all use of the waters of the river for power purposes by devoting the stream to other public use.

Smith v. Rochester (92 N. Y.).

Whether or not that has been done by the laws establishing the Niagara reservation I will discuss hereafter. I prefer at this point to consider the abstract question of the right of an owner of land adjoining a navigable stream to divert a considerable portion of the waters for manufacturing purposes without a grant or prescriptive right.

Nuisances may always be abated by action in the name of the aggrieved party. Public nuisances include any encroachment upon highways or navigable streams, and it is not an essential characteristic of the encroachment upon the stream that it should be an actual hindrance to navigation.

Wood on Nuisances, 2d ed., secs. 478-480, and cases cited.

The diversion of water from a public stream for any other than domestic purposes is a nuisance, and therefore may be abated at the suit of the Attorney-General.

Philadelphia v. Gelmartin (71 Penn. St., 140).

The Niagara Falls Hydraulic Power and Manufacturing Company is organized under the act of 1875, chapter 611. Its objects are declared to be the development of the hydraulic canal in Niagara Falls, and the establishment and conducting of various manufacturing interests. Under its charter it is not only supplying its own mills but is furnishing other industries with power for a consideration. So far as the latter fact is concerned, certainly no question can be raised as to the rights of a riparian owner to the use of water for his own benefit. I assume the fact that the capacity of the canal at the outset was sufficient for all the purposes of the power company, and that the increased capacity is desired for the purpose of enabling the corporation to derive a revenue from its sale of power to others. I have no hesita-

tion in declaring this to be unlawful. A nonriparian owner is not entitled to any benefits of a stream other than those enjoyed in common by the public, and a riparian owner at the most is entitled only to personal benefits derivable from use devoted to personal purposes solely. They do not include the transmission of power to property located upon premises that may be far removed from the lands of the riparian owner.

The case last cited was an action brought by the owner of a boat which had been prevented from navigating the Schuylkill, by reason of the diversion of the waters of that stream by the city of Philadelphia for domestic or other purposes. The court in its opinion says:

"In deciding upon the question of illegality in drawing off the water from the navigation, we are carried beyond its use for power, to inquire into the character of the consumption claimed as an overruling necessity. We have already seen that the city is a large vendor of water from which she is deriving revenue, for all the purposes of the arts, manufacturing, business, and pleasure. These uses are not domestic, that is, such as are for the preservation of the life and health of the population and their creatures, but are simply utilitarian or business uses, and far exceed those needed for domestic purposes. And even as to those termed domestic, a distinction must be noted between the use proper and that which is lavishly expended in pavement washing, baths, etc. It is perfectly obvious, therefore, that the city drew off water not only for driving and lifting power, but for a consumption far beyond any imperious necessity, and for purposes wholly subordinate to the right of navigation. She chose to prefer the pecuniary interests of her citizens, and doing an injury thereby she must make compensation to the injured parties. I mean not by these remarks to draw any comparison between the importance of the use of the water for the great purposes of industry, wealth, and cleanliness of a city so populous as Philadelphia, and the use of it for navigation during a few days of drought. The question for us is that of legal right, not comparative weight. Such important interests as those of the city are not likely to lead to the substitution of might for right; yet, they are not of that imperious necessity which justifies might, and changes wrong into right. Administrators of the law, we can not bend or break the law before a large interest, more than we can before one that is small. The doctrine of imperious necessity is not in this case."

It is historical that the Niagara River at Port Day has been navigated by vessels of large burden, and, indeed, to a point some distance below. The erection of cribs to divert ice and other refuse from the canal inlet is, therefore, an actual obstruction to navigation, and it is not necessary to show present use of the river at this point for navigation purposes. Once a highway, always a highway, is true of navigable streams. (See *Yolo v. Sacramento*, 38 Cal., 193; *Wood on Nuisances*, 478, 485.)

Ex parte Jenkins (6 Cowen, 518) is also of interest on this point. That was a proceeding brought in mandamus to compel commissioners appointed to appraise damages occasioned by the diversion of the stream of the Chittenango for the purposes of the Erie Canal, which diversion prevented the use of the water of the stream by riparian owners for power purposes in operating mills. The court, in awarding mandamus, says:

"The objection is contained in the affidavits of Mr. Seymour that, in point of fact, the State has not parted with the land upon which the Chittenango passes, at the places claimed, but had bounded purchases of land on the margin of the stream, so that, as he believes (and he believes the other appraisers were satisfied of the fact being so), the State was still the owner of the land covered by the waters of the stream, and had not parted with it or contracted to part with it, to any person whatever, or authorized the use of the water for hydraulic purposes at the places in question. If the construction set up by the commissioners be the true one, if the State owns the land covered by the water, it is clear that, though the relators may be entitled to the use of the water flowing by and touching upon them for all ordinary purposes, yet they can not build mills upon and raise the water of the stream. They are trespassers, and the State may claim not only the waters, but the mills themselves, so far as they encroach upon the stream."

I will not consider the effect of the grant by the land commissioners of lands under water to the corporation operating the canal.

The powers of the land commissioners at the time the grant was made were conferred by section 67, page 633, volume 1, eighth edition, Revised Statutes. It reads:

"The commissioners of the land office shall have power to grant, in perpetuity or otherwise, so much of the lands under the waters of navigable rivers or lakes as they shall deem necessary to promote the commerce of this State, or proper for the purpose of beneficial enjoyment of the same by the adjacent owner."

The court of appeals, in passing upon the character of such grant, says: "In every such grant there was an implied reservation of the public right, and so far as it is assumed to interfere with it, or to confer the right to impede or obstruct navigation, or to make an exclusive appropriation of the use of navigable waters, the grant was void."

Again: "Public grants to individuals under which rights are claimed in impairment of public interests, are construed strictly against the grantee, for it is reasonable to suppose that if they were intended to have this operation, the intention would have been expressed in plain and explicit language."

People v. N. Y. & Staten Island Ferry Co. (68 N. Y., 71).

I have been unable to find any language in the grant to the Niagara Falls Hydraulic Power and Manufacturing Company which can be construed as authorizing them to divert the waters of the Niagara River. Applying the principles in the case last cited, it is certain that that grant can afford no defense to an action brought to restrain the unlawful taking of the waters.

It now remains to determine whether or not the waters of the Niagara River have been devoted by the legislature to a public use to an extent that will prevent the diversion of the water above the falls for power purposes. The objects and purposes of the statutes creating the Niagara reservation were to preserve a great natural waterfall and its environments for the enjoyment of the people of this State. In fact, the statutes themselves declare that the commissioners shall take all proper steps to restore and afterwards to preserve the scenery as nearly in its natural state as possible.

The flow of water over the falls is an essential element in the preservation of the scenery, and if it can be shown (as I am informed it can) to be the fact that the diversion of the large quantities of water through the canal of the Niagara Falls Hydraulic Power and Manufacturing Company has a diminishing effect upon the flow of the water over the falls, the diversion is a nuisance and can be restrained.

All of which is respectfully submitted.

T. E. HANCOCK, *Attorney-General.*

HON. ANDREW H. GREEN.

President Niagara Reservation Commission, New York City.

APPENDIX B.

List of dependent industries of the Niagara Falls Hydraulic Power and Manufacturing Company.

Electric light for street and store service.
Pittsburg Reduction Company.
Niagara Falls Brewing Company.
Wm. A. Rogers (Limited.)
Niagara Gorge Railroad.
Youngstown and Lewiston Railroad.
National Electrolytic Company.
Acker Process Company.
Walker Manufacturing Company.

Cliff Paper Company.
Cataract City Milling Company.
Pettebone-Cataract Paper Company.
Oneida Community Company.
City Waterworks.
Niagara Falls Milling Company.
Carter-Crum Company.
Central Machine Company.

APPENDIX C.

The Niagara Falls Power Company—List of users.

	Maximum power.	Transmission distance.
NIAGARA FALLS, N. Y.		
	<i>Horsepower.</i>	<i>Miles.</i>
The Pittsburg Reduction Co.....	8,000	0.46
The Carborundum Co.....	5,000	.33
Union Carbide Co.....	17,000	2.00
Niagara Electro-Chemical Co.....	3,000	.75
Niagara Falls Lighting Co.....	1,000	.14
International Railway Co.....	1,500	.....
The Niagara Falls Water Works Co. (hydraulic power).....	300	.....
International Paper Co. (hydraulic power).....	8,000	.....
Castner Electrolytic Alkali Co.....	8,500	.85
Oldbury Electro-Chemical Co.....	2,500	2.18
International Acheson Graphite Co.....	2,000	.28
Acetyvone Manufacturing Co.....	50	.95
Roberts Chemical Co.....	500	1.90
Francis Hook and Eye and Fastener Co.....	15	.47
Norton Emery Wheel Co.....	1,500	.95
The Natural Food Co.....	1,500	.66
Ramapo Iron Works.....	500	1.70
By-Products Paper Co.....	500	.19
Composite Board Co.....	200	.34
Niagara Research Laboratories.....	500	.28
Lockport Paper Co.....	500	.....
Cataract Consumers Brewery.....	140	.....
Development and Funding Co.....	750	.....
Niagara Tachometer and Instrument Co.....	15	.....
Ozone Vanillin Co.....	125	.....
Phosphorus Compounds Co.....	50	.....
Acheson Siloxicon Articles Co.....	50	.....
Niagara River Manufacturing Co.....	800	.....
NIAGARA FALLS, ONTARIO.		
A. C. Douglass, contractor.....	400	3.00
Niagara, St. Catharines and Toronto Rwy.....	500	3.80
Lighting Co.....	500	3.40
Canadian Shredded Wheat Co. (Limited).....	75	.....
International Acheson Graphite Co.....	200	.....
Larkin, Sangster and Marshall, contractors.....	2	.....
Loretto Convent.....	40	.....
Monastery of Mount Carmel.....	35	.....
TONAWANDA.		
International Railway Co.....	1,500	.....
Tonawanda Board and Paper Co.....	1,200	15.00
Buffalo Bolt Co.....	160	14.00
Philip Houck Milling Co.....	142	14.00
F. J. Alliger Co.....	707	15.00
Adamite Abrasive Co.....	50	14.50
Orient Manufacturing Co.....	20	14.00
Felton School.....	22	14.00
LOCKPORT.		
International Railway Co.....	1,000	26.00
OLCOTT.		
International Railway Co.....	1,000	39.00
BUFFALO.		
Buffalo General Electric Co.....	6,000	27.60
Great Northern Elevator.....	900	29.50
Electric Grain Elevator.....	200	30.70
Buffalo Elevating Co.....	950	29.00
Buffalo Cereal Co.....	375	30.30
American Brake Shoe and Foundry Co.....	40	28.20
Charles G. Curtiss Co.....	125	25.50
McKinnon Dash Co.....	100	24.40
The Gypsum Products Co.....	.....	.....
The General Railway Signal Co.....	.....	.....
Schoellkopf & Co.....	50	30.00
The National Battery Co.....	90	26.30
International Railway Co.....	.....	.....
Great Eastern Elevator.....	900	30.00
Buffalo Dry Dock Co.....	133	30.00
Edward Elsworth & Co. (H. O. Mills).....	150	30.00
Snow Steam Pump Works.....	150	33.30
The Jacob Dold Packing Co.....	100	32.50
The John Kam Malting Co.....	225	24.30

The Niagara Falls Power Company—List of users—Continued.

	Maximum power.	Transmis- sion distance.
	<i>Horsepower.</i>	<i>Miles.</i>
BUFFALO—continued.		
Pratt & Letchworth Co.....		
The Wood & Brooks Co.....	100	24.40
Sidney Shepard & Co.....	100	30.00
Iron Elevator and Transfer Co.....	165	30.00
W. W. Oliver Manufacturing Co.....	15	24.70
New York Car Wheel Co.....	200	24.30
The United States Rubber Reclaiming Works.....	995	31.70
The American Radiator Co. (Bond plant).....	200	24.00
Barealo Manufacturing Co.....		
American Agricultural Chemical Co.....	125	32.00
Acme Steel and Malleable Iron Works.....	50	24.80
Cumpton-Prentiss Coffee Co.....	30	29.10
J. I. Prentiss & Co.....	30	29.00
Schoellkopf, Hartford & Hanna Co.....		
The U. S. Hame Co.....		
Knowlton Warehouse Co.....		
Iroquois Brewing Co.....		
Faxon, Williams & Faxon (bakery).....		
The Sherwood Manufacturing Co.....		
Duffy Silk Co.....		
American School Furniture Co.: Foundry.....		
Works.....		
Buffalo City Waterworks.....		
Duluth Superior Milling Co.....		
The Frontier Ice and Stone Co.....		
The New York Central and Hudson River R. R. (shops).....		
The Erie R. R. Co. (shops).....		
The General Chemical Co.....		
The Oswegatchie Manufacturing Co.....		
G. F. Zeller & Sons.....		
Buffalo Foundry Co.....	240	35.10
H. O. Mills Annex.....	255	29.30
The Jewett Refrigerator Co.....	30	24.80
Buffalo Pitts Co.: Works.....	187	35.50
Foundry.....		
Buffalo Brake Beam Co.....	30	25.00
Buffalo Dental Manufacturing Co.....	20	35.50
Keystone Manufacturing Co.....	25	24.80
R. L. Ginsburg & Sons.....	33	34.00
Buffalo Weaving and Belting Co.....	65	25.50
H. W. Dopp Co.....	10	25.00
Frontier Iron Works.....	15	25.00
The Crosby Co.....	50	33.00
Spencer Kellogg.....	500	29.20
The Lake Erie Engineering Works.....		
John Schmitz.....		
The Battle Creek Breakfast Food Co.....		
The Collins Baking Co.....	50	33.20
George Urban Milling Co.....	450	34.50
C. Kurtzmann & Co.....		
The Buffalo Gasoline Motor Co.....	20	25.00
The Niagara Mill and Elevator Co.....	100	26.00
Pratt & Lambert.....	10	24.50
The Delaware, Lackawanna and Western R. R. shops.....	150	34.50
The Niagara Cordage Co.....		
The U. S. Headlight Co.....	40	26.00
H. Messersmith (Laveraek Building).....	100	28.20
The Buffalo Structural Steel Co.....	30	26.00
The Wegner Machine Co.....	40	29.00
J. N. Adam & Co.....	100	28.20
The estate of Walter Cary (Genesee Hotel).....	100	28.10
The McLean Box Factory.....		
The George N. Pierce Co.....		
The American Malting Co.....		
The Buffalo Fertilizer Co.....		
The Buffalo Rubber Manufacturing Co.....		
The U. S. Cast Iron Pipe and Foundry Co.....		
The L. V. R. R. Co. shops.....		
The Buffalo Box Factory.....		
American Radiator Co. (Pierce plant).....		
Rogers Plating and Foundry Co.....		
Fleming Warehouse Co.....		
Hewitt Rubber Co.....		
C. & B. Transit Co.....		
The D. H. Stoll Co.....		
The Ontario Elevator.....		
L. M. Ericsson Telephone Manufacturing Co.....		
The Niagara Malting Co.....		
The Buffalo Union Furnace Co.....		

APPENDIX D.

Statement concerning companies incorporated to take water from Lake Erie and Niagara River, but which have not as yet constructed works under these charters.

AMERICAN SIDE.

Lockport Water Supply Company.—Incorporated 1886. New York State. Empowered to supply water for manufacturing and other purposes to cities within the county of Niagara; to take water from the Niagara River between the mouth of Tonawanda Creek and the east line of lot No. 52 of the Mile Reserve, and to discharge water into Lake Ontario or into Eighteen Mile Creek. Work to be commenced by 1891. No work done.

Lewiston Water Supply Company.—Incorporated 1888. New York State. Empowered to supply water to Lewiston and other towns in the township of Niagara and Lewiston for manufacturing or other purposes; to take water from the Niagara River between Cayuga Creek and the east line of lot 46, Mile Reserve; discharge water into Niagara River near the town of Lewiston. Work to be commenced by 1893. No work done.

Buffalo and Niagara Power and Drainage Company.—Incorporated 1889. New York State. Empowered to build and operate public raceway in connection with the Niagara River for water power and other purposes; to take water from and discharge water into the Niagara River at such points as may be convenient. Work to be completed by 1894. No work done.

Niagara County Irrigation and Water Supply Company.—Incorporated 1891. New York State. Empowered to build and operate public waterway from Niagara River between Cayuga Creek and lot 71 of Mile Reserve; to supply water to Lewiston and other villages in townships of Niagara, Lewiston, and Porter; to lease and sell water for manufacturing and other purposes; to take water from Niagara River between points specified and discharge into Niagara River near Lewiston or Porter. Work to be commenced by 1896. *This company claims to have done some work and to be proceeding with development.

Niagara Power and Development Company, originally The Model Town Company.—Incorporated 1893. New York State. Further legislation 1894. Authorized to build a town and equip plants for all public utilities therein. Empowered to take water from Lake Erie or Niagara River for all purposes except for motive power for factories. May purchase or lease franchise of the Niagara County Irrigation and Water Supply Company.

Niagara, Lockport and Ontario Power Company.—Incorporated 1894. Empowered to supply water and electricity to Lockport and other cities in Niagara, Erie, and Orleans counties; to take water from the Niagara River between mouth of Tonawanda Creek and east line of lot 52 of Mile Reserve and discharge water into Lake Ontario or Eighteen Mile Creek. Work to be commenced by 1904. In 1904 failed to obtain legislation to perpetuate right to take water from Niagara River. Is now building works for distribution of electric energy.

APPENDIX E.

Statement concerning companies incorporated to take water from Lake Erie and Niagara River, but which have not as yet constructed works under these charters.

CANADIAN SIDE.

Ontario Power Company, originally Canadian Power Company.—Incorporated 1887. Dominion Parliament. Other legislation 1891, 1893, and 1899. Empowered to build a canal and hydraulic tunnel from Welland River, near junction of Niagara, to Niagara River south of the whirlpool, and to supply water, electricity, or other power. As this company is empowered to make two separate developments, one of which is well under way, and as the act of 1899 empowers it to extend and enlarge its works as demanded by business, there is apparently no limit as to the time when the second development may be commenced.

Hamilton Cataract Power, Light and Traction Company, originally Cataract Power Company of Hamilton.—Incorporated 1889. Province of Ontario. Further legislation 1904. Empowered to build and operate a canal and raceway from near Allanburg to

the Welland River near Port Robinson as an extension of their canal from near Decews Falls. This company is said to lease from the Dominion Government water from the Lake Erie level of the Welland Canal.

Jordan Light, Heat and Power Company, originally Hamilton and Lake Erie Power Company.—Incorporated 1895. Further legislation 1898, 1903. Dominion Parliament. Empowered to build and operate water course from Welland River between 12 and 30 miles from Niagara River to a point on Jordan River, and may dredge Welland and Jordan rivers; to use the waters of Lake Erie and Niagara River in such quantity as may be necessary for their purposes; to supply water and electricity or other power. To be completed by 1911.

Erie and Ontario Power Company.—Incorporated 1903. Dominion Parliament. Authorized to build and operate water course from Grand River or Lake Erie to Jordan River and Lake Ontario; to take waters of Lake Erie and to dredge Jordan River; to supply electric or other power and convey the same. To be completed 1908.

Niagara Welland Power Company, originally Welland Power and Supply Company.—Incorporated 1894. Further legislation 1891, 1899, 1903, and 1905. Dominion Parliament. Empowered to build and operate canal from Welland River near Niagara River to near Thorold and to carry off surplus water to Lake Ontario; to supply power and to use canal for navigation. To be completed by 1910.

North American Canal Company.—Incorporated 1893. Dominion Parliament. Authorized to build and operate canal from Lake Erie near Port Colborne to Lake Ontario near Port Dalhousie, or to Niagara River near Queenston; canal to be 20 feet deep and sufficient width for two of the largest vessels to pass at full speed. Authorized to maintain a current of 3 miles per hour. To sell or lease water and hydraulic or other power. May dredge in the Welland and Niagara rivers. To be completed by 1903.

DEPARTMENT OF STATE,
Washington, March 19, 1906.

The PRESIDENT:

In reply to your letter of the 15th instant, transmitting the resolution of the Colonial Dames of America relative to the preservation of Niagara Falls, and stating your desire to be informed regarding the present status of the negotiations with Great Britain on the subject, I have the honor to inclose herewith copies of correspondence had to the present time, through the War Department, with the American section of the International Waterways Commission.

Respectfully submitted.

ELIHU ROOT.

DEPARTMENT OF STATE,
Washington, February 13, 1906.

SIR: Several months ago the State Department and the British ambassador took up the subject of a possible treaty between the United States and Great Britain relating to the use of the waters of the Niagara River and the preservation of the falls.

On the 13th of November the ambassador transmitted to the Department a report of the Canadian privy council, approved November 2, 1905, which stated that a report from the Canadian section of the Water Ways Commission stated that the Commission was studying the subject and expected to be able to "make a joint report to the Government of the United States and to the government of Canada before long, recommending the adoption of rules and regulations which would prevent in the future the destruction of Niagara Falls by the use of its waters by manufacturers."

In the report by the American section, made to the Secretary of War on December 1, 1905, occurs the following statement:

"The Commission has made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls."

On the 28th of October, 1905, the Commission appears to have adopted the following resolutions:

Resolved, That this Commission recommends to the Governments of the United States and Canada that such steps as they may regard as necessary be taken to prevent any corporate rights or franchises being granted or renewed by either Federal, State, or provincial authority for the use of the waters of the Niagara River for power or other purposes until this Commission is able to collect the information necessary to enable it to report fully upon the "conditions and uses" of those waters to the respective Governments of the United States and Canada.

The negotiation relating to a treaty on this subject has been suspended awaiting the further report of the Commission, in accordance with the statements to which I have referred. There are many indications of active public interest in this subject, and a joint resolution having in view the preservation of the falls, pending in the House of Representatives, has been favorably reported by the Committee on Rivers and Harbors. The indications are that if an agreement can be reached between the two countries as to the action necessary to accom-

plish the purpose, any legislation to give the agreement effect on the part of the American authorities would receive favorable consideration at the present session of Congress and at the present session of the New York legislature.

It seems desirable, therefore, to press forward the negotiation for such an agreement without any avoidable delay. May I ask you to ascertain whether the joint commission is not now prepared to make such a report upon the subject as may furnish a basis upon which the State Department and the ambassador may take up and proceed with the negotiation?

I have the honor to be, sir, your obedient servant,

ELIHU ROOT.

The SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, February 19, 1906.

SIR: I have the honor to acknowledge the receipt of your letter of 13th instant, in which you call attention to the fact that negotiations for a possible treaty between Great Britain and the United States in regard to the use of waters of Niagara River and preservation of the falls are now suspended, awaiting a further report from the International Waterways Commission is now prepared to make such report as may furnish a basis upon which the Department of State and the British ambassador may be able to proceed with the matter.

Replying thereto I beg to inform you that the chairman of the American section of the International Waterways Commission, Col. O. H. Ernst, to whom your letter was referred, reports under date of 17th instant as follows:

A copy of this letter has been sent to the chairman of the Canadian section and also to the other members of the American section of the International Waterways Commission in order that they may be prepared to discuss and act upon the question referred to at their next meeting.

It is expected that a meeting can be held during the week beginning February 26, when it is hoped and believed that the map of the locality which the Commission has had under construction will be entirely completed.

The outcome of the meeting referred to by Colonel Ernst will be promptly communicated to the Department of State.

Very respectfully,

ROBERT SHAW OLIVER,
Acting Secretary of War.

The SECRETARY OF STATE.

DEPARTMENT OF STATE,
Washington, March 13, 1906.

MY DEAR MR. SECRETARY: I notice in the newspapers that the International Waterways Commission has taken some action about the Niagara Falls matter.

Have you received any report? If not, can you get one from them?

Very truly, yours,

ELIHU ROOT.

Hon. WILLIAM H. TAFT,
Secretary of War.

APPENDIX D.

[Senate Document No. 434, Fifty-ninth Congress, first session.]

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES,

TRANSMITTING

A REPORT MADE TO THE SECRETARY OF WAR BY THE INTERNATIONAL WATERWAYS COMMISSION, UNDER DATE OF MAY 3, 1906, UPON THE PRESERVATION OF NIAGARA FALLS.

MAY 7, 1906.—Read; referred to the Committee on Foreign Relations and ordered to be printed.

To the Senate and House of Representatives:

I transmit herewith, for the consideration of the Congress, a report made to the Secretary of War by the International Waterways Commission, under date of May 3, 1906, upon the preservation of Niagara Falls.

THEODORE ROOSEVELT.

THE WHITE HOUSE, *May 7, 1906.*

WAR DEPARTMENT,
Washington, May 4, 1906.

MY DEAR MR. PRESIDENT: I beg to transmit herewith a report made to me by the International Waterways Commission of date May 3, 1906, for submission to Congress.

Very sincerely, yours,

WM. H. TAFT,
Secretary of War.

The PRESIDENT.

BUFFALO, N. Y., *May 3, 1906.*

The SECRETARY OF WAR OF THE UNITED STATES and
The MINISTER OF PUBLIC WORKS OF CANADA:

The International Waterways Commission has the honor to submit the following report upon the preservation of Niagara Falls:

The Commission has made a thorough investigation of the conditions existing at Niagara Falls, and the two sections have presented reports

to their respective Governments setting forth these conditions, to which attention is invited. The following views and recommendations are based upon a careful study of the facts and conditions set forth in these reports:

1. In the opinion of the Commission it would be a sacrilege to destroy the scenic effect of Niagara Falls.

2. While the Commission are not fully agreed as to the effect of diversions of water from Niagara Falls, all are of the opinion that more than 36,000 cubic feet per second on the Canadian side of the Niagara River or on the Niagara peninsula and 18,500 cubic feet per second on the American side of the Niagara River, including diversions for power purposes on the Erie Canal, can not be diverted without injury to Niagara Falls as a whole.

3. The Commission therefore recommend that such diversions, exclusive of water required for domestic use or the service of locks in navigation canals, be limited on the Canadian side to 36,000 cubic feet per second and on the United States side to 18,500 cubic feet per second, and in addition thereto a diversion for sanitary purposes not to exceed 10,000 cubic feet per second be authorized for the Chicago Drainage Canal, and that a treaty or legislation be had limiting these diversions to the quantities mentioned.

The effect of the diversion of water by the Chicago Drainage Canal upon the general navigation interests of the Great Lakes system will be considered in a separate report.

The Canadian section, while assenting to the above conclusions, did so upon the understanding that in connection therewith should be expressed their view that any treaty or arrangement as to the preservation of Niagara Falls should be limited to the term of twenty-five years, and should also establish the principles applicable to all diversions or uses of waters adjacent to the international boundary and of all streams which flow across the boundary.

The following principles are suggested:

1. In all navigable waters the use for navigation purposes is of primary and paramount right. The Great Lakes system on the boundary between the United States and Canada, and finding its outlet by the St. Lawrence to the sea, should be maintained in its integrity.

2. Permanent or complete diversions of navigable waters or their tributary streams should only be permitted for domestic purposes and for the use of locks in navigation canals.

3. Diversions can be permitted of a temporary character where the water is taken and returned again, when such diversions do not interfere in any way with the interests of navigation. In such cases each country is to have a right to diversion in equal quantities.

4. No obstruction or diversion shall be permitted in or upon any navigable water crossing the boundary, or in or from streams tributary thereto, which would injuriously affect navigation in either country.

5. Each country shall have the right of diversion for irrigation or extraordinary purposes in equal quantities of the waters of non-navigable streams crossing the international boundary.

6. A permanent joint commission can deal much more satisfactorily with the settlement of all disputes arising as to the application of these principles, and should be appointed.

The American members are of opinion that the enunciation of principles to govern the making of a general treaty is not within the scope of their functions; moreover the jurisdiction of the American members is restricted to the Great Lakes system.

GEO. C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
Commissioner.

LOUIS COSTE,
Commissioner.

THOMAS COTÉ,
Secretary, Canadian Section.

O. H. ERNST,
*Colonel, Corps of Engineers,
U. S. A., Chairman, Amer-
ican Section.*

GEORGE CLINTON,
Commissioner.

GEO. Y. WISNER,
Commissioner.

L. C. SABIN,
Secretary, American Section.

APPENDIX E.

[House Report No. 4654, Fifty-ninth Congress, first session.]

Mr. BURTON, of Ohio, from the Committee on Rivers and Harbors, submitted the following

REPORT.

[To accompany H. R. 18024.]

The Committee on Rivers and Harbors, to whom was referred the bill (H. R. 18024) for the control and regulation of the waters of Niagara River, for the preservation of Niagara Falls, and for other purposes, beg leave to submit the following report recommending the amending thereof by striking out all after the enacting clause and inserting the following:

That the diversion of water from Niagara River or its tributaries, in the State of New York, is hereby prohibited, except with the consent of the Secretary of War, as hereinafter authorized in section two of this act: *Provided*, That this prohibition shall not be interpreted as forbidding the diversion of the waters of the Great Lakes or of Niagara River for sanitary or domestic purposes or for navigation, the amount of which may be fixed from time to time by the Congress of the United States, or by the Secretary of War of the United States under its direction.

SEC. 2. That the Secretary of War is hereby authorized to grant permits for the diversion of water in the United States from said Niagara River or its tributaries for the creation of power to individuals, companies, or corporations which are now actually producing power from the waters of said river, or its tributaries, in the State of New York, or from the Erie Canal; also permits for the transmission of power from the Dominion of Canada into the United States, to companies legally authorized therefor, both for diversion and transmission, as hereinafter stated, but permits for diversion shall be issued only to the individuals, companies, or corporations as aforesaid, and only to the amount now actually in use: *Provided*, That the said Secretary, subject to the provisions of section five of this act, is hereby authorized to grant revocable permits, from time to time, to such individuals, companies, or corporations, or their assigns, for the diversion of additional amounts of water from the said river or its tributaries to such amount, if any, as, in connection with the amount diverted on the Canadian side, shall not injure or interfere with the navigable capacity of said river, or its integrity and proper volume as a boundary stream, or the scenic grandeur of Niagara Falls; and that the quantity of electrical power which may by permits be allowed to be transmitted from the Dominion of Canada into the United States, shall be one hundred and sixty thousand horsepower: *Provided further*, That the said Secretary, subject to the provisions of section five of this act, may issue revocable permits for the transmission of additional electrical power so generated in Canada, but in no event shall the amount included in such permits, together with the said one hundred and sixty thousand horsepower and the

amount generated and used in Canada, exceed three hundred and fifty thousand horsepower: *Provided always*, That the provisions herein permitting diversions and fixing the aggregate horsepower herein permitted to be transmitted into the United States, as aforesaid, are intended as a limitation on the authority of the Secretary of War, and shall in nowise be construed as a direction to said Secretary to issue permits, and the Secretary of War shall make regulations preventing or limiting the diversion of water and the admission of electrical power as herein stated; and the permits for the transmission of electrical power issued by the Secretary of War may specify the persons, companies, or corporations by whom the same shall be transmitted, and the persons, companies, or corporations to whom the same shall be delivered.

SEC. 3. That any person, company, or corporation diverting water from the said Niagara River or its tributaries, or transmitting electrical power into the United States from Canada, except as herein stated, or violating any of the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding two thousand five hundred dollars nor less than five hundred dollars, or by imprisonment (in the case of a natural person) not exceeding one year, or by both such punishments, in the discretion of the court. And, further, the removal of any structures or parts of structures erected in violation of this act, or any construction incidental to or used for such diversion of water or transmission of power as is herein prohibited, may be enforced by the order of any circuit court exercising jurisdiction in any district in which the same may be located, and proper proceedings to this end may be instituted under the direction of the Attorney-General of the United States.

SEC. 4. That the President of the United States is respectfully requested to open negotiations with the Government of Great Britain for the purpose of effectually providing, by suitable treaty with said Government, for such regulation and control of the waters of Niagara River and its tributaries as will preserve the scenic grandeur of Niagara Falls and of the rapids in said river.

SEC. 5. That the provisions of this act shall remain in force for three years from and after date of its passage, at the expiration of which time all permits granted hereunder by the Secretary of War shall terminate unless sooner revoked, and the Secretary of War is hereby authorized to revoke any or all permits granted by him by authority of this act, and nothing herein contained shall be held to confirm, establish, or confer any rights heretofore claimed or exercised in the diversion of water or the transmission of power.

SEC. 6. That for accomplishing the purposes detailed in this act the sum of fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated from any moneys in the Treasury not otherwise appropriated.

SEC. 7. That the right to alter, amend, or repeal this act is hereby expressly reserved.

The question of Federal jurisdiction over Niagara River, a boundary stream between the United States and Canada, has not been considered by Congress until this session. President Roosevelt, in his message at the beginning of the session, recommended action for the preservation of Niagara Falls. In pursuance of this recommendation, a resolution was reported from this committee and adopted by Congress, calling on the members of the International Waterways Commission from the United States for a report upon conditions at the Falls and for the cooperation of the members from the United States, with the members from Canada, in the taking of feasible steps to prevent further depletion of the waters flowing over the cataract. This Commission of three members was created under the river and harbor act of June, 1902, for the purpose of acting with a similar Commission to be appointed from Canada, in relation to the boundary waters between the United States and Canada, which belong to the Great Lakes and connecting waters.

In pursuance of this resolution the members of this Commission from the United States made a valuable report with recommendations on the 27th day of March, 1906. In this report there is an elaborate statement of conditions prevailing at the Falls, with figures showing the amount of diversion, present and prospective, on both sides of the river. It appears that numerous franchises have been granted by the State of New York for the diversion of water and the creation of

power. Of these, however, only two of any considerable importance have been acted upon. One is the Niagara Falls Power Company, the pioneer organization in the development of electricity from the waters of the river, and the other is the Niagara Falls Hydraulic Power and Manufacturing Company. The total diversion of water by these two companies, which is authorized by statutes of the State of New York, amounts to 17,200 and 9,500 cubic feet, respectively; in all 26,700 cubic feet, to be taken from the American side. The total amount at present utilized is about 12,600 cubic feet.

On the Canadian side the diversion of a considerably larger amount of water has been authorized under franchises granted by the Province of Ontario or the Dominion of Canada. While the present amount which is utilized on the Canadian side is comparatively small, three companies have extensive works nearing completion, capable of diverting an amount in excess of 25,000 cubic feet, sufficient to produce not less than 350,000 horsepower. The committee regard the jurisdiction of the United States over Niagara River as unquestionable, because it is a navigable stream in the greater part of its length, and although the waters in some portions are not navigable by reason of falls and rapids the control of such portions is essential to its adequate maintenance for purposes of navigation. Jurisdiction is more especially manifest because it is a boundary stream. It is the duty and responsibility of any country to provide for the defense of its borders. By the Constitution of the United States Congress may provide for the common defense.

Under these circumstances it is the undoubted right, as well as the duty of the law-making power, to exercise control over this stream, which forms the boundary line between the United States and Canada. Should Congress decide that in those portions where rapids exist or where navigation exists the water should flow in its present condition, without depletion or diversion, it would seem that no judicial or other authority could review its action in the premises. It is a matter of some surprise that the companies which have proceeded to divert the waters of the river under the authority of the State of New York have never appealed to Congress or to the Federal Government to confirm the authority granted by that State. It is thought best by the committee that the Federal authority should now be exerted, not merely for the preservation of the scenic grandeur of Niagara Falls, but for the maintenance of navigation and the proper control of the river as a boundary stream. Nevertheless it must be recognized that the companies which have obtained franchises from the State of New York, in view of the very large expenditures which they have made, have certain equities which must be respected.

At the beginning of the development of water power at Niagara Falls no account seems to have been taken of the possible danger to the cataract. The diversion of water was commended as an industrial endeavor of material benefit to the country. While there are, no doubt, many who regret that this diversion was ever commenced, it is impossible to entirely ignore the development which has occurred without injustice to those who have undertaken it. At the same time, it is the opinion of this committee that these rights should be construed with strictness; that no permits should be issued by the Federal Government for the diversion of water, either for that now in use or which may hereafter be used, except with the right of revocation.

The final settlement of the question of the amount of water which may be taken from Niagara River must necessarily be international in its nature and the result of diplomatic negotiations, to be embodied in a treaty. It is, however, very desirable, if not essential, that legislation be now enacted to prevent the further depletion or diversion of the waters of the river and to furnish a basis for diplomatic action.

In the bill presented a very large responsibility is imposed upon the Secretary of War. This course has been maturely considered and has seemed desirable, because the question of impairment of the scenic beauty of the cataract and of the interference with navigability or the integrity of Niagara River as a boundary stream is largely one of hydraulic engineering. It can not now be determined what quantity of water can be withdrawn without the impairment of the scenic grandeur of Niagara Falls, nor can it be determined to what extent such diversion will interfere with navigability or the integrity of the stream as stated. It is expected that this authority will be exercised by the Secretary of War with strictness. The bill authorizes:

1. The issuance of permits to individuals, companies, or corporations already using water to the extent to which water is now being used.

2. The issuance of further permits both for the diversion of water on the side of the United States and for the transmission of electricity created by water power from the Canadian side; this, however, in all cases, with the limitation that such permits shall not impair the scenic grandeur of Niagara Falls, the navigability of Niagara, or its integrity as a boundary stream.

In this connection it may be stated that in order to exercise this jurisdiction in such a manner as to accomplish the object of the bill, it is necessary to give the Secretary of War such jurisdiction as will enable him to restrict the quantity to be brought from Canada. The works on the Canadian side have for the most part been constructed by capital of citizens of the United States and with the manifest intention of transmitting power to be used in the United States. It would not be sufficient if the Secretary should take into account merely the diversion on the American side, because those who were refused permits to establish works here might, after refusal, immediately proceed to the other side of the river with the intention either of utilizing power already provided there or creating power by further diversions.

Section 4 of the bill requests the President of the United States to open negotiations with the Government of Great Britain for the purpose of effectually providing by suitable treaty with said Government for such regulations and control of the waters of Niagara River and its tributaries as will preserve the scenic grandeur of Niagara Falls and of the rapids of said river. It is hoped that such action may be taken by diplomatic negotiations as will bring an early settlement of the problem and secure the preservation of Niagara Falls and the proper regimen of the river both for navigation and as a frontier stream.

All permits to be granted under the bill are by section 5 revocable within three years by the Secretary of War, and shall in any event terminate at the expiration of three years from and after the date of the passage of this act, the time limited for its operation.

A report has been filed by the joint commission on international waterways, including both the members from the United States and

those from Canada, in which the principle of equality in the amount to be diverted on both sides by the United States and Canada is asserted. In the opinion of the committee this rule should be followed. At the present time, however, the preparation for diversion has been greater on the Canadian side. It is expected, however, that ultimately the diversions on either side will be equal, and that the Secretary of War will keep this principle in view.

When amended as above set forth the committee recommend that the bill do pass.

APPENDIX F.

[Document No. 4. 59th Cong., 1st sess., Committee on Rivers and Harbors, House of Representatives, U. S.]

INDUSTRIAL VALUE OF NIAGARA FALLS.

GENERAL ELECTRIC COMPANY,
NEW YORK OFFICE, 44 BROAD STREET,
April 9, 1906.

MY DEAR SIR: The object of this is to demonstrate the necessity of cheap power in the development of American industries, the important part which Niagara can play therein, and the enormous economic value of the power available from the falls.

IMPORTANCE OF POWER TO MANUFACTURING PROGRESS.

The census returns of 1900 give the total power of steam generating apparatus used for manufacturing purposes in the United States as 8,761,083 horsepower. The total of gas or gasoline power was 143,954 horsepower, making the total for generating plants consuming fuel 8,905,037 horsepower.

The same report also states that the cost of fuel consumed by such plants during the year was \$205,320,632, this without stating the quantities of fuel consumed.

However, it is well known that the cost of fuel is approximately 40 per cent of the entire cost of developing steam power, so the total cost of producing the above amount of power was approximately \$513,000,000, or \$57 per horsepower.

Approximately 78 per cent of all power used in manufacturing was steam, so this proportion of totals of employees, products, etc., is taken to reach the immediate following:

The total value of products from steam production was \$10,140,115,343. The items which entered into the cost of their production were:

Materials	\$5, 827, 929, 742
Wages	1, 710, 336, 771
Miscellaneous	803, 485, 908
Total	7, 341, 752, 421

In these items are of course included the cost of power as calculated above, i. e., \$513,000,000. It is therefore seen that the item of power is approximately 7 per cent of the entire cost of production and that it is the equivalent of 30 per cent of the item of wages; or, calculating in another way, it is found that for every wage-earner in the steam-driven manufacturing establishment \$122.55 is annually expended for power.

To illustrate the effect of a liberal and increasing use of power upon manufacturing progress and production, the following tables are inserted:

Relation of power to manufacturing progress in the entire United States compiled from census reports.

Year.	Wage-earners.	Horse-power used.	Value of products.	Product per wage-earner.	Horse-power per wage-earner.
1850.....	957,059	?	\$1,019,106,616	\$1,067	?
1860.....	1,311,246	?	1,885,861,676	1,437	?
1870.....	2,053,996	2,346,142	4,232,325,442	2,030	1.19
1880.....	2,732,595	3,410,837	5,369,579,191	1,916	1.21
1890.....	4,251,613	5,954,655	9,372,437,283	2,204	1.40
1900.....	5,308,406	11,300,081	13,004,400,143	2,450	2.15*

Relations of power to manufactures in various countries of the world in the year 1900.

[From article by the writer in Engineering Magazine, May, 1904.]

Country.	Wage-earners.	Total horsepower used in manufactures.	Value of products.	Value of products per wage-earner.	Horse-power per wage-earner.
United States.....	5,308,406	11,300,081	\$13,004,400,143	\$2,450	2.15
United Kingdom.....	9,000,000	3,000,000	5,000,000,000	536	.33
Germany.....	10,000,000	3,400,000	4,600,000,000	460	.34
France.....	5,000,000	1,500,000	3,450,000,000	690	.30
Belgium.....	1,550,000	630,000	720,000,000	480	.42
Switzerland.....	600,000	320,431	300,000,000	500	.54
Austria-Hungary.....	4,700,000	750,000	2,000,000,000	425	.16
Russia.....	4,500,000	703,000	1,980,000,000	440	.15
Italy.....	3,600,000	900,000	1,700,000,000	472	.25
Norway.....	200,000	80,000	90,000,000	450	.4
Sweden.....	490,000	200,000	280,000,000	572	.41
Holland.....	460,000	130,000	245,000,000	540	.29
Spain.....	1,800,000	250,000	650,000,000	361	.15
Australia.....	550,000	460,000	500,000,000	900	.80
Japan (factories only).....	388,298	84,216	220,000,000	566	.22
Canada.....	550,000	750,000	800,000,000	1,455	1.36

It is seen from a glance at the above table that America, with rates of wages more than double those paid in Europe, could not have reached its high rank as a manufacturing nation were it not for the large output per wage earner, which is secured by a liberal use of power, which means the use of labor-saving machinery.

Relations of power to manufacturing progress in the State of New York, compiled from the census reports.

Years.	Wage-earners.	Horse-power used.	Value of products.	Value of product per wage-earner.	Horse-power per wage-earner.
1850.....	199,349	(?)	\$237,597,249	\$1,242	(?)
1860.....	230,112	(?)	378,870,939	1,646	(?)
1870.....	351,800	334,363	785,194,651	2,203	0.95
1880.....	531,533	454,143	1,080,696,596	2,033	.85
1890.....	752,066	776,820	1,711,577,671	2,276	1.03
1900.....	849,056	1,181,369	2,175,726,900	2,562	1.39

Relations of power to manufacturing in certain States adjoining New York in the year 1900.

	Wage- earners.	Horse- power used.	Value of prod- ucts.	Value of product per wage- earner.	Horse- power per wage- earner.
All New England	947,645	1,871,798	\$1,875,792,081	\$1,980	1.98
Pennsylvania	733,834	1,859,265	1,834,790,860	2,527	2.66
Ohio.....	345,869	850,600	832,438,113	2,469	2.49

Feeling that the importance of cheap power to our manufacturing industries has been shown, it is desired to say that the only methods for improving present conditions in this respect are:

First and most important. Utilizing every American water power to its fullest extent.

Second. A more general location of manufactures close to sources of fuel supply.

Third. The adoption of more highly economical, steam-driven power plants and more efficient methods of distributing and utilizing their energy.

The enormous advantages which would accrue from the adoption of these last two suggestions will, however, be neutralized in a comparatively few years if some effort is not made to preserve the coal supply of America.

This feature is so important and has so great a bearing upon the question at issue it is considered proper to directly consider it herein.

COAL SUPPLY.

It would be unfair to place the responsibility for the rapidly increasing use of coal in the United States, which threatens the ultimate exhaustion of the supply, entirely upon the manufacturing industries, for its consumption for transportation and other purposes has increased even more rapidly than for manufacturing uses. Attention should, however, be called to the leaps and bounds with which American coal production is increasing, so that the importance may be realized of preserving the supply by so far as is practical utilizing water power for all industrial purposes.

Comparison of manufacturing growth with coal output.

Year.	Total value of manufactures.	Total horse- power em- ployed in man- ufacturing.	Coal tonnage produced.
1870.....	\$1,232,325,442	2,346,142	36,807,333
1880.....	5,369,579,191	3,410,837	71,481,570
1889.....	.....	.....	141,229,513
1890.....	9,372,437,283	5,954,655	.....
1900.....	13,004,400,143	11,300,081	.....
1902.....	.....	.....	301,590,439

In the report of the Geological Survey on coal production for 1902 it is estimated that the total production of coal in the United States up to that date had been 4,860,000,000 tons. At the rate of output for that year, without allowing for increases, in a period of sixteen years

from that time as much coal will be produced as in all the history of American coal mining prior thereto, and if the present rate of increase continues about ten years will see this accomplished. It should be remembered in this connection that use of natural gas and petroleum during the past twenty years has avoided the use of many millions of tons of coal.

Coal readily accessible naturally means low-priced fuel, and consequently cheap power. As coal becomes more and more difficult and expensive to mine its prices must constantly advance, and the cost of producing steam power will correspondingly increase.

THE INDUSTRIAL VALUE OF NIAGARA.

The report of the American Section of the International Waterways Commission in a brief paragraph concedes it to be hundreds of millions of dollars. Who is legally entitled to this enormous value is beyond my province to discuss, but speaking broadly, from the standpoint of economics, it should not be lost to the industrial requirements of the North American continent.

Subsequent calculations will be given herein to approximate the value of Niagara's power in the light of industrial experience up to the present, but before doing so it is desired to call your attention to a rapidly growing new class of industries which have attained their greatest development at Niagara, i. e., electro-chemical and electro-metallurgical products.

While exact figures on power consumed by these at Niagara are not now available to the writer, I am not far from the facts in stating that one-half the power used on the American side of the river is by industries of that character which were unknown commercially when the census of 1890 was taken. These are of the greatest importance to the arts and industrial progress and their commercial value great.

Their development and that of equally important kindred industries is dependent upon cheap power which is utilized for nearly every hour in the year.

As previously shown herein, the average cost of producing steam power for manufacturing in 1890 was \$57 per horsepower for the year, but probably the average time of its use was not over 10 hours per working day, or 3,000 hours during the year. Had it been developed for the 8,760 hours in the year, on the same basis of computation, the annual cost per horsepower would have been approximately \$166.

These industries at Niagara at most are not paying over \$25 per horsepower for a continuous year's service of 8,760 hours and the rates will be very much less. With lower rates for such a service steel smelting by electric power would be an immediate possibility, as well as other industries but little less important.

The writer knows from several years' contact with the leading captains of industry in Germany, especially with Doctor Rathenau, the most important factor in the electro-chemical industries of that country, that Germany considers and fears Niagara and other great American water powers as the one factor which will give America supremacy on electro-chemical, electro-metallurgical, and similar productions.

Values of these conditions and possibilities are impossible to estimate, but their importance can not be questioned.

The American section of the International Waterways Commission in its report has stated that the total power of Niagara is approximately 4,000,000 horsepower, but owing to topographical and other natural obstacles it would be impracticable to develop over approximately 2,000,000 horsepower.

Specialist hydraulic engineers have considered it possible to develop approximately 3,000,000 horsepower from the Falls, but the Commission's estimate of 2,000,000 horsepower will be taken as a basis for the following calculations.

An extremist, in making calculations on the value of Niagara's power, might consider that as it flows continuously 8,760 hours per year it would be proper to estimate as follows:

The average cost per annual horsepower hour for continuously developing steam power as calculated from the Census report is \$166. Deduct from this figure \$20, the Commission's maximum estimate on the yearly cost per horsepower for producing power at Niagara, a saving would be shown over steam of \$144 per horsepower, or a total for 2,000,000 horsepower of \$292,000,000. This capitalized at 5 per cent would give a prospective value to Niagara's power of \$5,840,000,000.

The above calculation is of course unfair, as unquestionably it has cost the manufacturers of the United States too high a figure to produce power by steam, and all of Niagara's power would not be used continuously; so the following calculation is made based upon good engineering practice on steam power production and in accordance with usual commercial conditions.

A consumption of 4 pounds of coal per horsepower hour for 3,000 hours per annum would mean a yearly consumption per horsepower of 12,000 pounds, or, say, 6 net tons, making a total for 2,000,000 horsepower of 12,000,000 tons. Estimating the average value of this fuel to be \$2.50 per ton, it is seen that the saving effected is \$30,000,000. Considering this to represent 40 per cent of the cost for developing annually 2,000,000 horsepower by steam, the total for so doing is \$75,000,000. Deducting from this the Commission's estimate of \$30,000,000 as a fair cost for developing 2,000,000 horsepower per annum at Niagara the total saving over steam is shown to be \$45,000,000 or \$22.50 per horsepower.

The total saving capitalized at 5 per cent would fix a value to the power available from the falls of \$900,000,000, not including the additional value of power which would be used for more than 3,000 hours per annum.

There is also no doubt but what power can be developed at Niagara for not exceeding \$12 per continuous annual horsepower, which would materially increase the valuation above the immediate foregoing estimate.

Figures appeal only by comparison.

The census returns for 1900 show that the entire value of all farm property in the State of New York was \$1,069,723,895, and that the entire capital of the manufacturing establishments in the State was \$1,651,210,220.

Giving due consideration to the great scenic value of Niagara, might it not yet be pertinent to ask, If the people of the State and of the nation realize the commercial value of Niagara's power, would they be

willing to sacrifice for the preservation of the entire scenic effect their share in what is worth practically all the farms of the State and more than half the value of its entire manufacturing establishments?

According to the report of the Geological Survey for 1902 the coal production of Pennsylvania for that year was 103,271,057 tons, valued at the mines at \$121,832,539.

While this product was, of course, a public necessity, nevertheless it reduced the value of the natural resources of the State. Yet its production and local utilization has defaced the landscape and marred the beauty of some of the best of American scenery. Would it not, therefore, be as proper to agitate the abandonment of mining in these localities as to refrain from utilizing nature's gift of more than the equivalent of coal at Niagara?

CANADA'S ADVANTAGE.

It may be presumptive to suggest that commercial motives have in any way actuated the agitation in Canada for the preservation of Niagara's scenic effect or that the Dominion desires to drive a shrewd commercial bargain in connection therewith.

It is clearly apparent, however, that the power development on the Canadian side of the Niagara River is much greater than on the American side. In fact, it is so great that many years must elapse before it can all be utilized in Canada, and the present agitation there to prohibit its transmission to American soil or for the placing of an export duty thereon clearly demonstrates that its value is appreciated as a most important factor in building up Canadian industries.

In almost all directions in Canada where a reasonable distance of transmission from Niagara is reached the points beyond can be reached by electric transmission of power from other large water powers, so that practically the whole industrial belt of Canada has cheap power available. Consequently Canada would suffer but little if for the next fifty years it utilized no more Niagara power than that for which it has already provided.

Despite this condition the American section of the International Waterways Commission has recommended in its report that Canada be given the advantage of 17,500 cubic feet per second more water from Niagara than the United States, for in their estimate of water to be taken on the American side they have included 10,000 cubic feet per second from Lake Michigan for the Chicago Drainage Canal, which probably does not affect the flow of the Niagara River in the slightest degree.

A cubic foot of water per second at Niagara represents approximately 12 horsepower, so on a concession of 17,500 cubic feet more to Canada than is granted to America, Canada would be given the benefit of 210,000 horsepower, at a net value of \$22.50 per horsepower, in accordance with our previous calculations, which would represent an annual concession to the Dominion of \$4,725,000.

To illustrate the Canadian's appreciation of water-power values it can be said that during the past seven years the capitalists of no country in the world have gone so extensively into the development of water powers outside of their own countries as those of Canada, they having promoted and financed large enterprises of this character for transmitting power to the City of Mexico, Sao Paulo, Brazil, Rio de

Janeiro, and elsewhere, representing capital issues to a total of probably \$150,000,000, and to-day more securities of this character are dealt in on the stock exchanges of Toronto and Montreal than in that of any other city in the world.

In conclusion, it is desired to call attention to the public remarks of Lord Kelvin on his last visit to Canada, when he prognosticated that the Dominion would become the greatest manufacturing country of the world through its enormous waterfalls.

With highest regards, I am, very sincerely, yours,

WM. J. CLARK.

Hon. T. E. BURTON,

Chairman Committee on Rivers and Harbors,

House of Representatives, Washington, D. C.

APPENDIX G.

[Document No. 5. 59th Cong., 1st sess., Committee on Rivers and Harbors, House of Representatives, U. S.]

THE AMERICAN SCENIC AND HISTORIC PRESERVATION SOCIETY,
Tribune Building, New York City, May 1, 1906.

Hon. T. E. BURTON,
Chairman of Rivers and Harbors,
House of Representatives, Washington, D. C.

DEAR SIR: Henry E. Gregory, esq., counselor at law, a trustee of this society and former secretary and treasurer of the commissioners of the State reservation at Niagara, furnishes us with the following brief, which he permits us to send to you. It seems to cover some of the points which arose at the hearing which I attended and may be of some assistance to you and your committee in deciding upon the bill for the preservation of Niagara Falls.

Trusting that it may contribute in some way to the cause for which you are so ably working, I remain

Yours, very truly,

EDWARD HAGAMAN HALL,
Secretary.

I.

Under the common law there were two classes of rivers, navigable and nonnavigable. The former were also called public and the latter private. The broad distinction between the two classes was that in the former the tide ebbed and flowed, whereas in the latter it did not.

It is unnecessary to state that the common-law rule which limited the navigability of a river by the ebb and flow of the tide does not obtain in this country, and that navigability in law is synonymous with navigability in fact. Cases both in the United States Supreme Court and in the New York courts will be cited so as to leave no doubt on this point.

It is clear from the decisions that the Niagara, although a tideless river, and a river in which navigation is interrupted by rapids and the falls, is nevertheless a public and navigable river.

It differs from most other rivers in that it has no source in mountain, hill, or high ground, but is simply a stream connecting Lake Erie and Lake Ontario; or, perhaps, it would be better to describe it as a water course that carries the discharges of the four great lakes into the fifth.

But it has another distinction. Through it runs the boundary line that separates the United States from the Dominion of Canada. This

fact and the fact that it is a navigable stream would seem to dispose of any doubt as to the jurisdiction of the Federal Government over its waters, either to prevent excessive diversions on the Canadian side, or to enter into relations with the Government of Great Britain in order to effect by treaty or convention, as far as possible, the preservation of the Falls of Niagara.

By the decisions of the New York courts the Niagara must be regarded as a navigable river.

The principal cases are—

Ringman v. Sparrow, 12 Barb., 201.

Canal Appraisers v. People, 17 Wend., 507.

In re Commrs. State Res'n at Niagara, 16 Abb., N. C., 175.

In re Commrs. State Res'n at Niagara, 37 Hun., 547.

Others that may be consulted are—

Canal Commrs. v. People, 5 Wend., 423.

People v. Canal Commrs., 33 N. Y., 461;

in which the cases are collated and the subject comprehensively treated by Davies, J.

Smith v. Rochester (92 N. Y., 463), in which Ruger, Ch. J., referring to the common-law rule, says "that it is generally conceded that this doctrine is inapplicable to the vast fresh-water lakes or inland seas of this country or the streams forming the boundary line of States" (p. 479).

"The line between United States and Canada is located in the center of Niagara River (treaty of 1783. 8 U. S. Stat. at Large, 55, and that of Ghent in 1814, id., 221; and such is the boundary of Niagara County, law of 1808, chap. 60). So far as our attention has been called to any authority relating to this river, it has been recognized and treated as, in every sense, a public river, as much as if it was an arm of the sea in which the tide flowed, and acknowledged as such. (*Tibbits's case*, 17 Wend., 623; *Kingman v. Sparrow*, 12 Barb., 201.) And we think because it is navigable in fact and constitutes the natural boundary between this and another country is the reason why the proprietary rights from its margin to such boundary line is in the State, and that the riparian owners have taken by the grant referred to only to the water's edge of the stream. And that the fact that at the particular place in question the river is not navigable by reason of the interruption produced by the falls does not qualify or distinguish it in that locality as a public river from its general character." (Opinion. *In re Com'rs State Res'n*, 37 Hun, 547.)

Kingman v. Sparrow, 12 Barb., 201 (gen. term), decides that the common law rule, as applied to grants bounding premises on rivers, has no application to lands bounded on the Niagara River, on the grounds that it is "both a navigable and boundary stream.

"This decision stands unreversed, and has not, so far as we have seen, in any adjudicated case, been subjected to hostile criticism. It makes the law for us in regard to this river, and relieves us from the necessity of an extended study of the decisions in England; or in the States of the Union; or even in our State in regard to the Hudson, the Mohawk, and other rivers." (Marsh, com'r.)

In re State Res'n at Niagara, N. 16 Abb., N. C., 175.

Hensler v. Hartman.

Opinion by J. G. Milburn, affirmed by special term, Fifth District, 1878.

"The Niagara River, like the St. Lawrence, seems to have been deemed by our courts as so clear and eminent an instance of nonapplicability of the common law rule that it is sometimes cited as an undoubted illustration of that class of rivers where the riparian proprietors do not take title to the bed of the stream; as by Judge E. D. Smith in the *People v. Gutchess* (48 Barb., 656, 666); by Judge Barker in the *Buffalo Pipe Line Co. v. N. Y., L. E. & W. R. R. Co.* (10 Abb., N. C., 107, 110); by Senator Beardsley in *Canal Commissioners v. The People* (5 Wend., 423, 446, 462); and by Senator Tracy in the *Canal Appraisers v. People* (17 Wend., 570, 571, 623); the latter saying: 'The rivers of Niagara and St. Lawrence, for instance, are acknowledged to be public rivers, in every sense, as much as if they were arms of the sea into which the tide flowed.' And these references to the Niagara River seem to have been made to it quite as much in reference to its magnitude and navigability as to its position as a boundary of our empire. The great proposition stands, therefore, on a double ground; and two elements unite to rescue this river from the dominion of the common-law rule."

See the whole Opinion of Marsh, commissioner.

The Niagara is a public navigable river, and riparian owners have no title to the bed of the stream. (*Barney v. Keokuk*, 94 U. S., 324, 338.)

"A riparian proprietor upon the Mississippi River owns the fee of the soil only to ordinary high-water mark.

"High-water mark, as the line between the riparian proprietor and the public, is coordinate with the limit of the river bed, and that only is to be regarded as river bed which the river occupies long enough to wrest it from vegetation, so as to destroy its value for agricultural purposes." (*Houghton v. The C. D. and M. R. Co.*, 47 Iowa, 370.)

"The State has the title to all the navigable waters within its borders, subject only to the jurisdiction delegated by it to Congress in the Constitution of the United States, for the regulation of commerce." (*People v. Tibbets*, 19 N. Y., 523.)

It is familiar law that the shores of navigable rivers and streams and the lands under the waters thereof belong to the State within whose territorial limits they lie. (*Brown, J., in Kerr v. W. S. R. R. Co.*, 127 N. Y., 269, 277.)

"And the doctrine is fully established that in fresh-water rivers, where the tide does not rise, except in our large lakes and *rivers forming the boundary between us and other States and nations*, the ownership of the citizen is of the whole river—the soil and the water—subject to the servitude of the public interest or right of way. (Ex parte Jennings, 6 Cowen, 536, and note, 26 Wend., 404.)"

Morgan v. King, 30 Barb., 9-15.

819 Barb., 484.

"In New York it was long considered as settled law that the State succeeded to all the rights of the Crown and Parliament of England in lands under tide waters, and that the owner of land bounded by a navigable river within the ebb and flow of the tide had no private title or right in the shore below high-water mark, and was entitled to no compensation for the construction, under a grant from the legislature of the State, of a railroad along the shore between high and low water

mark, cutting off all access from his land to the river, except across the railroad."

Shiveley v. Bowlby, 152 U. S., 1-20.

Citing *Lansing v. Smith*, 4 Wend., 9, 2.

Gould v. H. R. R. Co., 6 N. Y., 522.

People v. Tibbets, 19 N. Y., 523, 528.

People v. Canal Appraisers, 33 N. Y., 461, 467.

Langdon v. New York, 93 N. Y., 129, 144, 154, 156.

New York v. Hart, 95 N. Y., 443, 450, 451, 457.

In re Staten Island R. T. Co., 103 N. Y., 251, 260.

The decisions of the United States courts, as well as the statutes, leave no doubt as to the question whether the Niagara is a public river and under the control of Congress and subject to the admiralty jurisdiction of the United States courts under the Constitution.

"The navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same shall be common highways and forever free, as well to the inhabitants of the said territory as to the citizens of the United States, and those of any other States that may be admitted into the confederacy without any tax, impost, or duty therefor."

Ordinance of 1787, art. 4.

Evolution of the Ordinance of 1787, by Jay A. Barrett.

Univ. of Nebraska. Seminary Papers, Putnams, 1891.

It is true that in the case of *The Thomas Jefferson* (10 Wheat., 428), the common law rule was recognized, and the admiralty jurisdiction of United States courts confined to streams in which the tide ebbed and flowed. This case has, however, been overruled by

Genesee Chief v. Fitzhugh, 12 How., U. S., 443; followed by

The Magnolia, 20 How., U. S., 296; and the

Hine v. Trevor, 4 Wall., 555.

On February 26, 1845, Congress passed an act "extending the jurisdiction of the district courts to certain cases upon the lakes and navigable waters connecting the same." (5 Stat. L., 726.)

The case of the *Genesee Chief* decided that this act was constitutional, and decided further that this conclusion does not rest upon the power granted to Congress to regulate commerce, but "upon the ground that the lakes and navigable waters connecting them are within the scope of admiralty and maritime jurisdiction as known and understood in the United States when the Constitution was adopted. The admiralty and maritime jurisdiction granted to the Federal Government by the Constitution of the United States is not limited to tide waters, but extends to all public navigable lakes and rivers, where commerce is carried on between different States, or with a foreign nation."

"It is evident," said Chief Justice Taney in the opinion, "that a definition that would at this day limit public rivers in this country to tide water rivers is utterly inadmissible. * * * The lakes and the waters connecting them are undoubtedly public waters, and we think are within the grant of admiralty and maritime jurisdiction in the Constitution of the United States."

"The doctrine of the common law as to the navigability of waters has no application in this country. Here the ebb and flow of the tide do not constitute the usual test, as in England, or any test at all of the navigability of waters." (Field, J., in the *Daniel Ball*, 10 Wall., 557, 563.)

Prior to the revolution the possession of the lands of the American colonies was in the Crown of Great Britain. "And upon the American revolution," says Gray, J., in *Shively v. Bowlby* (152 U. S., 15), "all the rights of the Crown and of Parliament vested in the several States, subject to the rights surrendered to the National Government by the Constitution of the United States. (*Johnson v. McIntosh*, 8 Wheat., 595, 543; *Martin v. Waddell*, 16 Pet., 367, 408, 410, 414; *Commonwealth v. Roxbury*, 9 Gray, 451, 478, 481; *Stevens v. Pater-son and Newark R. R.*, 5 Vroom (34 N. J. Law), 532; *People v. N. Y. and Staten Island Ferry*, 68 N. Y., 71.)"

"The decisions of this court referred to at the bar regarding the shores of waters where the ebb and flow of the tide from the sea is not felt, but which are really navigable, should be considered with reference to the facts upon which they were made, and keeping in mind the local laws of the different States, as well as the provisions of the acts of Congress relating to such waters.

"By the law of England, Scotland, and Ireland, the owners of the banks *prima facie* own the beds of all fresh-water rivers above the ebb and flow of the tide, even if actually navigable, to the thread of the stream, usque ad filum aqua. (Lord Hale in *Hargrave's Law Tracts*, 5; *Bickett v. Morris*, L. R. 1 H. L. Sc., 47; *Murphy v. Ryan, jr.*, 2 C. L., 143; *Orr Ewing v. Colquhoun*, 2 App. Cas., 839.)

"The rule of the common law on this point appears to have been followed in all the original States, except in Pennsylvania, Virginia, and North Carolina, and except as to *great rivers such as* the Hudson, the Mohawk, and the St. Lawrence in New York, as well as in Ohio, Illinois, Michigan, and Wisconsin. But it has been wholly rejected, as to rivers navigable in fact, in Pennsylvania, Virginia, and North Carolina, and in most of the new States. For a full collection and careful analysis of the cases, see *Gould on Waters* (2d ed.), secs. 56-78."

"The navigable waters of the United States include such as are navigable in fact, and which, by themselves or their connections, form a continuous channel for commerce with foreign countries or among the States. Over these Congress has control by virtue of the power vested in it to regulate commerce with foreign nations and among the several States." (*Miller v. Mayor of New York*, 109 U. S., 385.)

"The term navigable embraces within itself, not merely the idea that the waters could be navigated in fact, but also the idea of public-ity, so that saying waters were public was equivalent, in legal sense, to saying they were navigable." (*McManus v. Carmichael*, 3 Clarke (Iowa), 1-27.)

"A river is a navigable water of the United States when it forms, by itself or by its connection with other waters, a continued highway over which commerce is or may be carried on with other States or foreign countries in the customary modes in which such commerce is conducted by water." (*The Montello*, 11 Wall., 411.)

II.

By Article VI of the treaty of Ghent (signed December 24, 1814) the questions concerning the boundary between the United States and the British possessions "from the point where the forty-fifth degree of north latitude strikes the river Iroquois or Cataraquy to the Lake

Superior" were referred to two commissioners, whose duty it was to designate the boundary line. These commissioners rendered their decision June 18, 1822. The following extract from their decision indicates the boundary line from the mouth of the Niagara River to Lake Erie:

"Thence easterly along the middle of said lake (Ontario) to a point opposite the mouth of the Niagara River; thence to and up the middle of said river to the Great Falls; thence up the falls, through the point of the Horse Shoe, keeping to the west of Iris, or Goat Island, and of the group of small islands at its head, and following the bends of the river so as to enter the strait between Navy and Grand islands; thence along the middle of said strait to the head of Navy Island; thence to the west and south of and near to Grand and Beaver islands, and to the west of Strawberry, Squaw, and Bird islands, to Lake Erie."—(See book containing treaties and conventions between United States and other powers, Washington, 1889, pp. 403, 407, 408.)

Dr. Travers Twiss, in his work on the Law of Nations, says:

"§144. The Roman jurists regarded certain things as incapable by nature of being appropriated. 'Et quidem naturali jure communia sunt omnium hæc, aer aqua profluens, et mare, et per hoc litora maris.' * * *

"There is accordingly no warrant of natural law for an absolute right of property in the running water of rivers (*aqua perennis*) any more than in the tidal water of the sea. But if the free and common use of a thing of this nature (namely, which is of itself inexhaustible) be prejudicial or dangerous to a nation, the care of its own safety will entitle it so far, and so far only, to control the use of it by others, as to secure that no prejudice or danger result to itself from their use of it. A nation may accordingly have a right of empire over things which are nevertheless by nature *communis usus*, and over which it can not acquire an absolute right of property; as, for instance, over portions of the high seas, or *over rivers which form the boundary of its territory*."

Vide Vattel, Law of Nations, bk. I, ch. 22; bk. II, ch. 7.

Houck on Navigable Rivers, ch. 6.

Tyler on Boundaries.

The right to control the waters of a river which is the boundary between two countries belongs to both countries. This right is incidental to sovereignty. The withdrawal of excessive quantities of water by one country would naturally give rise to complaint by the other. Should Canada or Ontario authorize the diversion of a sufficient quantity of the water of the upper Niagara to inflict injury upon the opposite bank or the riparian owners thereof, it would be incumbent upon the Federal Government to remonstrate. The State of New York can not enter into negotiations with a foreign power.

"The well-settled rule of the law of nations is, that where an arm of the sea or a river is the boundary between two nations or States, if the original right of jurisdiction is in neither, and in the absence of any convention respecting it, each holds to the middle of the stream. The true line of territorial boundary between the United States and the British Provinces in the bay and waters of Passamaquoddy is the middle of the stream or channel between the territories of the two countries; inasmuch as the treaty of 1783 contains nothing definite on the subject and fixes generally the eastern boundary line of the United

States on the Bay of Fundy, of which Passamaquoddy Bay is part." (Angell on Tide Waters, 2d ed., p. 7.)

"Where a navigable river forms the boundary of conterminous States (countries) the middle of the channel, or thalweg, is generally taken as the line of separation between the two States, the presumption of law being that the right of navigation is common to both; but this presumption may be destroyed by actual proof of prior occupancy and long undisturbed possession, giving to one of the riparian proprietors the exclusive title to the entire river."

Elements of Inter. Law.

Wheaton, Lawrence's Edition, p. 346.

"Where a navigable river forms the boundary between two States both are presumed to have free use of it, and the dividing line will run in the middle of the channel, unless the contrary is shown by long occupancy or agreement of the parties." (Introduct. to Inter. Law, Woolsey, 6th ed., p. 79.)

Justice Story in *Poole v. Fleeger* (11 Pet., U. S., 185, 209), says: "It can not be doubted that it is a part of the general right of sovereignty, belonging to independent nations, to establish and fix the disputed boundaries between their respective territories; and the boundaries so established and fixed by compact between nations, become conclusive upon all the subjects and citizens thereof, and bind their rights, and are to be treated, to all intents and purposes, as the true and real boundaries. This is a doctrine universally recognized in the law and practice of nations." (Quoted and approved by Field, J., in *Virginia v. Tennessee*, 148 U. S., 503, 525; *Iowa v. Illinois*, 147 U. S., 1-14.)

While it is true that the boundary line between United States and Canada is an imaginary line in or through the Niagara River, the real international boundary is the river itself, and as such the United States have jurisdiction over its waters as far as the boundary line, notwithstanding that the title to the river bed and soil on the American side or the imaginary boundary line is in the State of New York. (See *Illinois Central R. R. Co. v. Illinois*, 146 U. S., 387, 435, et seq., and see pp. 452-454.)

The Niagara is navigable in fact most of its length. Whether commerce is actually carried on over its water between New York and Canada or not, commerce may be so carried on. Congress has authority over it, therefore, under section 8, Article I of the United States Constitution, which provides that "Congress shall have power to regulate commerce with foreign nations, and among the several States and with the Indian tribes."

Cooley, Cons. Line, page 728 (6th ed.) says:

"Congress is empowered to regulate commerce with foreign nations and among the several States; and wherever a river forms a highway upon which commerce is conducted with foreign nations or between States it must fall under the control of Congress under this power over commerce."

Even over streams lying entirely within a State Congress has power to regulate commerce. (*Williamette Iron Bridge Co. v. Hatch*, 125 U. S., 1.)

Nebraska v. Iowa (143 U. S., 359) decides that "when grants of land border on running water, and the banks are changed by the gradual process known as accretion, the riparian owner's boundary line still

remains the stream; but when the boundary stream suddenly abandons its old bed and seeks a new course by the process known as avulsion, the boundary remains as it was, in the center of the old channel; and this rule applies to a State when a river forms one of its boundary lines."

The opinion by Brewer, J., quotes at length from the opinion of Cushing (8 Opin. Atty. Genls.), 175:

"For in truth," says Attorney-General Cushing, "just as a stone pillar constitutes a boundary, not because it is a stone, but because of the place in which it stands, so a river is made the limits of nations, not because it is running water bearing a certain geographical name, but because it is water flowing in a given channel, and within given banks, which are the real international boundary" (p. 362).

The President has an unrestricted power to make treaties. "The Constitution places no limits whatever upon the subjects, conditions, or contents of treaties."

Pomeroy Cons. Law, 9th ed., p. 566 and seq.

St. Louis v. Rutz, 138 U. S., 226.

Packer v. Bird, 137 U. S., 661.

Cases on navigable waters. The latter especially to be consulted. Opinion by Field, J., citing the familiar cases and reiterating the familiar rules.

"And it is a sound principle of national law, and applies to the treaty-making power of this Government, whether exercised with a foreign nation or an Indian tribe, that all questions of disputed boundaries may be settled by the parties to the treaty, and to the exercise of these high functions by the Government, within its constitutional powers, neither the rights of a State nor those of an individual can be interposed." (McLean, J., in *Lattimer v. Poteet*, 14 Pet. 4, 14.)

"In their relations with foreign governments and their subjects or citizens the United States are a nation invested with the powers which belong to independent nations."

The Chinese Exclusion case, 130 U. S., 581.

Knox v. Lee, 12 Wall., 457, 555.

"For the purposes of international law that State only can be regarded as sovereign which has retained its power to enter into all relations with foreign states, whatever limitations it may impose on itself in other respects." (Woolsey, *ib.*, p. 37.)

If the United States can not enter into an agreement with another nation respecting the waters of a river which separates the territory of the two nations, it does not possess complete sovereignty. It would be preposterous to claim this to be the fact.

"By sovereignty we intend the uncontrolled, exclusive exercise of the powers of the State; that is, both of the power of entering into relations with other States and of the power of governing its own subjects."

The treaty-making power of the United States would not be used to injure one of the States of the Union.

"Our Government," says Woolsey (Inter. Law, p. 161), "when the Northeastern boundary was in dispute, declared that it had no power to dispose of territory claimed by the State of Maine. 'The better opinion would seem to be,' says Chancellor Kent, 'that such a power of cession does reside exclusively in the treaty-making power under the Constitution of the United States, although a sound discretion

would forbid the exercise of it without the consent' of the interested State."

Whatever interest New York may have in the waters of the Niagara River, it can hardly be questioned that the United States, in the exercise of its treaty-making power as a sovereign, can enter into an agreement with Great Britain to prevent the further diversion of the water of the upper river on both sides of the same.

The cataract being so extraordinary, and belonging, one may say, to the human race, the nations within whose boundaries it lies may be regarded as trustees for its protection and preservation. It becomes their duty, therefore, to agree that private corporations shall not be permitted to diminish its grandeur.

Indeed, it may be argued that the State of New York also occupies the position of a trustee with reference to the cataract and the upper river; and that as such trustee it was exceeding its duty and violating its trust in granting to private corporations the right to take and divert the waters of the river which it should have jealously guarded as trustee for the public.

If the United States Government and Great Britain refuse to interpose, there is nothing to prevent the State of New York and the Dominion of Canada (provided they are so disposed) from drawing off so much of the water of the upper Niagara as to make the cataract practically disappear.

Inasmuch as natural objects of great fame and splendor are now regarded by enlightened people as entitled to Government protection, and States under an implied trust or obligation to preserve them for the benefit, instruction, and pleasure of the people, it would seem to be a most natural and proper thing for the two Governments to agree that hereafter the protection required and expected shall be accorded.

"The United States Government treats the diversion of obstruction of the ordinary flow of water, when caused by foreign nations, as a national grievance, affording ground for national complaint."

In 1880 Secretary Evarts wrote to the United States minister at the Mexican capital and also to the Mexican minister at Washington, complaining that the Mexicans on the western *shore* of the Rio Grande are in the habit of diverting into ditches dug for that purpose all the water that comes down the river in the dry season, thereby preventing our citizens on the Texan shore from getting sufficient water to irrigate their crops. He said that this practice is "in direct opposition to the recognized rights of riparian owners," and that it "might eventually, if not amicably adjusted through the medium of diplomatic intervention, be productive of constant strife and breaches of the peace between the inhabitants of either shore." In 1884 Secretary Frelinghuysen wrote to the United States minister at the British court that the erection of works on the *Meduxinkik* River in New Brunswick, in such a way as to obstruct the flow of water in Maine, and to injure the lumbering business in that State, is a proper subject for diplomatic interposition by this Government. (Harvard Law Review, Vol. VIII, No. 2.)

November, 1894, page 144 (article on "Power of a State to divert an interstate river," by George B. French and Jeremiah Smith).

See 1 Wharton International Law Digest, sec. 20.

"The State of Texas has municipal jurisdiction under the law of nations over the Rio Grande to the middle of the stream, so far as it

divides Texas from Mexico. This is subject to such international jurisdiction as the United States may have over such waters under the Constitution of the United States, and to the right of the free use by Mexico of the channel."

Mr. Bayard to Mr. Bowen, June 12, 1886.

I Wharton, Inter. Law Dig. sec. 30.

If it has satisfactorily been shown that the Niagara is a public and navigable stream, constituting the boundary between the United States and Canada; that the United States Government and Great Britain each has jurisdiction over an undivided half of it, and that the two nations, as tenants in common, may agree between themselves that the water of the river above the Falls shall not be further diverted, in order that the volume and grandeur of the most famous natural object on the continent may be preserved, the question remaining to be answered is, Will the two Governments enter into such agreement?

In 1885 the State of New York in response to a popular demand, as expressed in petitions and through the press, appropriated a considerable sum of money to pay for the shore and islands of the river near the Falls which it has taken from private owners under the exercise of the right of eminent domain. In 1888 the Province of Ontario assumed ownership of the river bank on the Canadian side, and thus the Falls and the rapids seemed to be guarded from the profane touch of money-mongering corporations.

The possibility that the State of New York and the Province of Ontario, after having done so much for the protection and preservation of the scenery of the Falls, would deliberately grant to private corporations the right to diminish and injure and partially destroy the great spectacle of the Falls, did not occur to those interested in Niagara.

Whether or not the diversions already authorized, or claimed to be authorized, will have a serious effect upon the cataract need not to be discussed. So long as the upper river remains without the pale of international protection there is constant danger to the cataract.

If to enlightened men both in this country and England, it seemed to be reprehensible neglect of duty for the State of New York and the Province of Ontario to permit the banks and islands of the Niagara adjacent to the cataract to remain under private control, with all the concomitant defacements, unsightliness, and injuries to the scenery, what shall be said of them when they grant away to private corporations the right to divert great volumes of water of the upper Niagara, and thus lay profane hands upon the great cataract itself?

Surely here is an opportunity for two governments, in the exercise of the power which appertains to them as sovereigns, to interpose and as trustees for the peoples of both countries and for mankind, to decree that hereafter such diversions shall cease, that the Falls of Niagara shall be preserved in all their natural grandeur, undiminished and uninterfered with, in order that men of all nations may resort thither for edification and delight henceforth and forever.

APPENDIX H.

DOCUMENT No. 6.

59th Congress, 1st session.

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES, U. S.

Effect of Withdrawal of Water from Lake Michigan by the Sanitary District of Chicago.

UNITED STATES ENGINEER OFFICE,
508 Federal Building, Chicago, Ill., May 22, 1906.

GENERAL: I have herewith to submit the following report upon the subject of withdrawal of water from Lake Michigan by the Chicago drainage district, as referred to me by first indorsement of your office, April 13, 1906, upon letter of Hon. T. E. Burton dated April 11, 1906.

2. Assuming, from the last paragraph of that letter, that an immediate answer was not required, I wrote to the Chicago sanitary district, and to the Chicago River Improvement Association and to other interested parties, to secure from them an expression of their views on the subject, and I expected to have received all their answers over three weeks ago. But the confusion incident to a change of office of the sanitary district and to the recent labor strike among the steamboats of this region, and other unforeseen circumstances, have delayed such reports. That of the sanitary district is now received (copy herewith); but the date of receipt of the others can not now be asserted with any certainty. Consequently I think best to submit the present report without further delay, and will submit further reports after the river association and other parties have been heard from.

3. The present permits from the War Department to the Chicago sanitary district are briefly as follows:

(a) That of May 8, 1899 (E. D. 35041 (?)), authorizing the diversion of water from Lake Michigan via Chicago River, its South Branch and West Fork, into the drainage canal at a point near Roby street, Chicago; this permit not specifying any particular volume of water to be diverted, but, by implication, indicating a volume of not exceeding 300,000 cubic feet per minute (5,000 cubic feet per second), and a velocity not exceeding 1.25 miles per hour (1.83 feet per second), which were the limits there named as given in a prior permit for deepening and widening Chicago River as a preliminary to the drainage canal construction. The real limit of the flow, allowed under this permit, is the point at which "such flow may become unreasonably obstructive to navigation or injurious to property."

(b) That of April 9, 1901 (E. D. 35242 (?)), authorizing a flow of 200,000 cubic feet per minute (3,333 cubic feet per second) from midnight to 4 p. m., followed by 300,000 cubic feet per minute (5,000 cubic feet per second) from 4 p. m. until midnight.

(c) That of December 5, 1901 (E. D. 35242 74), authorizing a flow of 250,000 cubic feet per minute (4,167 cubic feet per second) throughout twenty-four hours of the day.

(d) That of January 17, 1903 (E. D. 35242 80), authorizing a flow of 350,000 cubic feet per minute (5,833 cubic feet per second) during the winter (closed navigation) season of that year until March 31, 1903.

(e) After the expiration of the time limit of permit (d), the limit of permit (c) of December 5, 1901, came again into effect; so that the present limits are 250,000 cubic feet per minute (4,167 cubic feet per second) for twenty-four hours per day.

4. Under the provisions of the Illinois drainage act of May 29, 1889 (secs. 23-24), the sanitary district is required to be able to maintain in the canal a flow of 20,000 cubic feet per minute (333 cubic feet per second) for each 100,000 of population in its district, if such population at any time exceeds 1,500,000; and it is required, under certain provisions as to future navigation, to give the canal a cross section sufficient to pass 600,000 cubic feet per minute (10,000 cubic feet per second) with a velocity not exceeding 3 miles per hour (4.4 linear feet per second). The first condition would by inference allow only a population of 1,250,000 for the already authorized flow of 250,000 cubic feet per minute (4,167 cubic feet per second), and it does require a flow of 300,000 cubic feet per minute (5,000 cubic feet per second) for the population of 1,500,000 already claimed for the district. The volume of water flow so far allowed by the War Department is therefore less than that at present demanded by the Illinois State laws.

The cross section of the Chicago River when its widening shall be completed by the drainage district will be such that at its smallest cross section (omitting contraction at bridge draws) it will pass a volume of 600,000 cubic feet per minute (10,000 cubic feet per second), with a current of 1.46 miles per hour (2.13 feet per second), this volume being considered sufficient for the district for all actual needs of to-day as well as for several years more, or until the district population shall reach 3,000,000. The sanitary condition of the river has been so good so far with the 250,000 cubic feet per minute (4,167 cubic feet per second) already authorized by the War Department that there is no special apparent need (other than legal) for a use to-day of any greater volume; but the sanitary district, looking to the completion of the river widening in 1907-1909, desires the 300,000 cubic feet per minute required by its charter for its present 1,500,000 population and, looking to the future, naturally seeks authority for such a flow as will provide for still further enlargement of the district and for future rapid growth of its population. This situation has already been briefly explained to the War Department and to Congress in the recent report on a 14-foot navigable waterway from Lockport, Ill., to St. Louis, Mo., via the Des Plaines, Illinois, and Mississippi rivers. (Pp. 10-11, H. Doc. No. 263, 59th Cong., 1st sess.)

5. The future extent of demand for diversion of water from Lake Michigan, in the neighborhood of Chicago, must not be supposed limited to Chicago River alone, or even to the Chicago sanitary district as it was when originally planned. The results of first work having

indicated such good prospects for the future, the original single intake through Chicago River main entrance has already been augmented by a pumping plant on the lake near Thirty-ninth street, which pumps into the Thirty-ninth street sewer to flush its contents through the South (or Stock Yards) Fork and the West Fork, South Branch, Chicago River, to the head of the district drainage canal near Robey street, this route accounting for the 2,000 cubic feet per second asked for the Thirty-ninth street sewer. In the same way a secondary canal is to be completed from Calumet River, along the "Sag" route through the old State canal feeder, to empty into the district drainage canal at a point about 18 miles from its head in Chicago River and about 9 miles from Lockport, at which latter place the main canal now overflows into the Des Plaines River, this route being intended to drain and take sewage from an area around South Chicago, Ill., and East Chicago, Ind. (which latter place is likely some day to have a million population of its own), and accounting for the 4,000 cubic feet now requested for Calumet River. The 4,000 cubic feet may be enough for Calumet River for a few years, but eventually there will be a demand for several times this amount for its northwestern Indiana surroundings.

According to recent newspaper articles there is a not improbable possibility of other towns and cities on the lake front of northeastern Illinois and southeastern Wisconsin desiring to erect pumping plants along the lake front and to pump their own sewage into the tributaries of the Des Plaines and Fox rivers, and to draw large volumes of water from Lake Michigan for flushing purposes by pumping stations and flushing conduits similar to the arrangement at Thirty-ninth street, Chicago. Furthermore, this office has recently been informally told that there is a liability of a combined power and navigation canal being established by private parties in the near future between Lake Michigan and the Ohio River basin which will wish to take considerable of its water supply from Lake Michigan and will demand a right to the same by reason of being an aid to navigation. Finally, there are other water routes, already partly in existence, by which the water of the West Fork of Chicago River is liable to be drawn off direct into the Des Plaines River for power purposes without passing through the drainage canal, and demands are liable to be made at any time in this direction. Consequently, any question as to the volume of diversion of Lake Michigan waters into the Mississippi River basin must look forward to demands for a much greater diversion than the 10,000 cubic feet per second now needed by the sanitary drainage district, and greater, even, than the 14,000 cubic feet per second now requested by them for present and future use. In my opinion, the War Department must look forward to a future not unreasonable demand for from 20,000 to 30,000 cubic feet per second for navigation and sanitary purposes, to be taken out of Lake Michigan at points along the Wisconsin, Illinois, and Indiana shores.

6. If water diversion must be limited (as already appears necessary to safeguard the future public use of the same) it would seem to this Office that the first right to the use of water belongs to navigation, to which water is an absolute necessity. The second right belongs to the public needs for sanitary purposes, so far as they can not be provided for otherwise, and the use of water for power purposes alone should be made secondary to the above, since it is always possible to obtain

power in other ways. For such reasons I consider the sanitary district request and other similar requests should be given more weight than such requests as are based merely upon uses for power purposes.

7. The foregoing general information and discussion has been given above in order to make easier a consideration of back reports and back history should the War Department desire to refer to them during further discussions of this question, and also in order to make easier the consideration of such new reports as may be brought forward from time to time. The actual experience of the past has so far given no definite, plainly observable, direct results to govern the future treatment of the questions at issue. Such treatment must therefore still be based upon theoretical or "academic" discussions as to probable water levels, probable currents, and probable difficulties in handling the large boats that are expected to use Chicago River and the waterway from Lake Michigan through Chicago River, the drainage canal, and Illinois River to the Mississippi so fast and so far as the 20 feet, 14 feet, and 8 feet depth channels may be extended or otherwise secured in the future.

8. The expected effect of the proposed water diversion upon lake and river levels has been briefly discussed by the 14-foot waterway board in 1905 (p. 11, H. Doc. No. 263, 59th Cong., 1st sess.) and by the United States lake survey quite fully in 1900 and 1904 (p. 5401, annual report 1900; pp. 4120 and 4131, annual report 1904). This discussion by the United States lake survey appears to be the most reliable yet offered by anyone, and its predicted results are apparently not disputed by either the sanitary district or any other existing engineering authority.

9. From the point of view of the lake survey discussion upon this subject, I affirm positively that any continuous permanent diversion of water from Lake Michigan into the Mississippi River basin through the sanitary district drainage canal or other waterways must necessarily effect a permanent lowering of the average water level of Lakes Michigan and Huron if the effect be considered as measured below the levels which would exist in these lakes if no such diversion were allowed. The only question at issue is, therefore, whether such lowering will be appreciable and serious.

10. From the lake survey discussion, above referred to, it will be evident that—

One year's steady flow- age in cubic feet—		Will equal a volume equivalent to that of—
Per second.	Per minute.	
4, 167	250, 000	1.3 inches depth..
6, 000	360, 000	1.8 inches depth..
8, 000	480, 000	2.4 inches depth..
10, 000	600, 000	3.0 inches depth..
12, 000	720, 000	3.5 inches depth..
14, 000	840, 000	4.1 inches depth..
20, 000	1, 200, 000	5.9 inches depth..
30, 000	1, 800, 000	8.9 inches depth..

Over the entire water surface (45,314 square miles)
of Lakes Michigan and Huron combined

It is evident that a long-continued diversion of the above volumes of water must produce serious cumulative effects, not necessarily specially observable in the first few years, but sure and certain in its

final effects upon the average level after several years; and the consequent permanent lowering will continue until the time comes when the water surface of the head of St. Clair River (natural outlet of Lakes Michigan and Huron) shall have lowered enough to cause the loss of water flow through St. Clair River to equal the newly developed water flow through the new diversion outlets. Were it not that the volume of outflow of Lake Huron diminishes slightly as the surface level drops, the surface level of combined Lakes Michigan and Huron would be lowered each year by an amount equal to that of the last column of the above table.

11. As it has been found by reliable observations of the United States lake survey (see 1904 annual report, above quoted) that a fall of 1 foot in Lake Huron level corresponds to a loss of 19,238 cubic feet per second in the flow discharge through St. Clair River, it becomes evident that the final permanent lowering of Lakes Michigan and Huron levels will be a little more than twice as much as the depths given in the above table as corresponding to the actual volume of a single year's flow. The lake survey formulæ lead to actual results approximately as follows:

Flowage of diversion canals and outlets—		Depth of lowering of the surface of Lakes Michigan and Huron at the end of the—				
Per second.	Per minute.	First year.	Third year.	Fifth year.	Final.	
<i>Cubic feet.</i>	<i>Cubic feet.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Feet.</i>
4,167	250,000	1	2	2	3	0.2
6,000	360,000	1	3	3	4	.3
8,000	480,000	2	4	5	5	.4
10,000	600,000	2	5	6	6	.5
12,000	720,000	3	6	7	7	.6
14,000	840,000	3	7	8	9	.7
20,000	1,200,000	5	10	11	13	1.1
30,000	1,800,000	7	14	17	19	1.6
In percentage.....		38	76	91	100	

These effects may be one-twentieth more during years of low-lake stages or one-seventh less during years of high-lake stages.

12. The effect on Lake Erie will be very closely four-fifths of the above and will in like manner amount to approximately as follows:

Flowage of diversion canals and outlets—		Depth of lowering of the surface of Lake Erie at the end of the—				
Per second.	Per minute.	First year.	Third year.	Fifth year.	Final.	
<i>Cubic feet.</i>	<i>Cubic feet.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Feet.</i>
4,167	250,000	1	1	2	2	0.2
6,000	360,000	1	2	3	3	.3
8,000	480,000	2	3	4	4	.3
10,000	600,000	2	4	5	5	.4
12,000	720,000	3	5	6	6	.5
14,000	840,000	3	6	7	8	.6
20,000	1,200,000	4	8	9	11	.9
30,000	1,800,000	6	12	14	16	1.3

The effects may be one-twentieth more during years of low lake stages or one-seventh less during years of high lake stages.

13. By examination of the last graphical chart prepared by the United States lake survey to show the water levels of the Great Lakes

from 1860 to 1904 (opposite p. 4056, annual report 1904), it will be seen that these lakes act as storage ponds, and their surface levels gradually rise whenever rainfall is greater than evaporation and runoff, and gradually fall under the opposite conditions. The chart shows Lakes Michigan and Huron to rise and fall practically as a unit, and these two lakes, with Lake Erie, rise regularly from 0.5 to 1.7 feet every spring, and they fall nearly an equal amount every autumn, being usually lowest in January-February and highest in July-August. In addition, the average level gradually rises during a series of wet years and falls during a series of dry years. In 1879-80 the water level of Lakes Michigan and Huron was at about a medium stage (about 581.2 above New York Harbor); after which the annual average gradually rose about 0.3 foot on an average each year until 1886, when it reached as high as at any time since 1860 (standing about 583); after which it fell about 0.3 feet per year until 1895-96, when it was lower than any prior record, even that of 1847 (standing about 579.5); after which it again started upward, its average rise for the past nine years being, however, only 0.12 foot per year, leaving the water level of 1904-5 at a standstill and at an exceedingly low stage (about 580.6), where a downward tendency of level would seriously damage the interests of navigation and lead to great expense to the Federal Government for extensive dredging in all the harbors of Lakes Michigan, Huron, and Erie, and in the adjoining waterways of St. Marys River from Lake Huron upward to the foot of the Sault Locks, and in the St. Clair River and Lake and Detroit River from Lake Huron downward to Lake Erie.

Furthermore, by reason of winds and barometric effects, oscillations of 6 inches several times in a single day are frequent, and 2 to 4 feet within an hour are occasionally experienced. Consequently, individual exceptional levels are misleading, and the general effects of water diversions must be measured by annual average rather than by monthly or daily. Even when considering only annual levels, the irregular oscillation of the annual average lake surface, combined with the fact that so far the sanitary district diversion has been confined to 4,167 cubic feet per second (250,000 cubic feet per minute), makes it difficult for any one to prove that the 0.2 foot final lowering expected theoretically from the past 250,000 cubic feet per minute diversion has really been the cause of the present unusually slow recovery from the unusually low stage of 1895-96, and of the present practical continuance of dangerously low water stages. But the danger of further lowering of this level another 0.5 foot or more by an increase of the recently allowed 4,167 cubic feet per second up to 10,000 and 14,000 cubic feet per second, as now requested, is undoubtedly real and should be evident from the above remarks.

14. If diversions of from 4,167 to 30,000 cubic feet per second from Lake Michigan should be actually made at any future time, then the next time that dredging becomes necessary in rivers and harbors of Lakes Michigan, Huron, and Erie, it will become necessary for the Federal Government to dredge to lower levels than before, and the extra depth of such necessary dredging must be taken at the figures of the last columns of the above tables of paragraphs 11-12, viz, at from 0.2 to 1.6 feet in Lakes Michigan and Huron and from 0.2 to 1.3 feet in Lake Erie, dependent upon the amount of diversion allowed. The only way of avoiding such extra dredging will be by holding up the

water levels of all these lakes by dams and other controlling works across the exits of these lakes, which will be expensive and probably impracticable for Lakes Michigan and Huron and expensive, but practicable and eventually probable, for Lake Erie. The diversion of the 14,000 cubic feet per second named in the request of the Chicago sanitary district of April 11 would therefore mean future dredging some day to 0.7 foot extra depth in all harbors of Lakes Michigan and Huron and to 0.6 foot in those of Lake Erie (or its equivalent in dams, etc.). The cost of such dredging of dams, etc., will be the price to be eventually paid by the Federal Government for granting such privileges to the sanitary district.

15. The expected effect of the water diversion through Chicago River and the sanitary district drainage canal upon the use of the river and canal by navigation is an entirely different question from that of lowering of lake levels; and again I find that past experience fails to show definite direct results which can be used for deciding future effects. So far the actual flow under the above-named War Department permits has ordinarily been kept within the limits of the permits, although occasionally, during seasons of suspended or slackened navigation, such limits may have been exceeded for short intervals for experimental purposes. Except where the resulting flow has been temporarily increased by irregular causes (such as sudden natural changes of lake level), for which the sanitary district has not been responsible, the currents have not so far proved to be unreasonably, or even moderately, obstructive to navigation or injurious to property. At times some protests have been made against a feared impending danger, and a few complaints have been made about troubles actually realized, but in practically all such cases the dangers and trouble have apparently proved to be largely imaginary or exaggerated. Such complaints, as a rule, have been due not to unreasonable currents, but mainly to the fact that prior to the opening of the drainage canal the Chicago River was ordinarily a quiet pool of dead water except for short intervals during strong winds and a rising or falling barometer; and the change from this quiet pool to a waterway with a constant current required the adoption of new or different methods for handling boats and required time for people to get used to the change.

In the few cases where past troubles from currents have been real, they have been due to the contracted channel ways at bridges, tunnels, and other special points, where full dimensions of water flow have already been secured or are being secured by the drainage district improvements, or will be soon provided by tunnel owners. These troubles in the past have been quite freely and fully commented upon or reported upon by the boat interests and by this office, the most important of such reports being those of the hearing before the honorable Secretary of War, May 16, 1900 (E. D. 35242 7), that of Major Willard, February 16, 1901 (with third indorsement on E. D. 35242 26), that of Major Willard, June 20, 1900 (E. D. 35242 (?)), that of Major Willard, March 29, 1901 (with third indorsement on E. D. 35242 40), and that of Colonel Ernst, November 5, 1901 (which led to permit E. D. 35242 74, quoted above). These reports show that the greatest velocity heretofore actually observed at any single point of the worst old bridge draw opening (that of Canal street, now greatly improved), was 2.24 miles per hour (3.29 feet per second), while the average for a whole cross section at this draw was only about 1.8 miles

per hour (2.6 feet per second), and the average for a full 200-foot width of river just above and below the bridge would not have been over 1.2 miles per hour (1.8 feet per second); and that even a large part of this was probably due to sudden changes of lake levels for which the drainage district was not responsible. These currents, although much complained of at the time, are not greater than are constantly encountered in many tidal rivers on the Atlantic coast, where no complaints are made, because all boat captains and pilots are accustomed to such currents and make their arrangements accordingly.

16. But if complaints have been urgently presented in the past at Chicago with an allowed flow of 4,167 cubic feet per second, there is no doubt but that further and numerous complaints must be expected when the total volume of flow shall be doubled, although the velocities to be met by a single boat passing through any unobstructed portion of this river in future years will still be very small, owing to the new clear widths and clear depths being so great as to make the new cross section of the river at constricted places more than double the old cross section. Future trouble in the Chicago River, due to the currents caused by the drainage district diversions, will be due not so much to the actual volume of water passing as to the fact that the public expects from the Chicago River to-day the performance of three entirely different functions, viz, (*a*) service as a sewer to carry off water freely, (*b*) service as the main wharfage area or principal dock or slip of Chicago Harbor, and (*c*) service as a canal for free passage of boats from one end of the harbor to the other, including, probably, in a few years, service as the most important portion of the through canal or water route from Lake Michigan to the Illinois and Mississippi rivers. The Chicago River, even after enlargement to 200 feet width and 26 feet depth, according to the present plans of the sanitary district, will have all it can do to properly fulfill either one of the above functions alone, and it can not reasonably be expected to properly fulfill any two of such functions, and much less to fulfill all three together.

17. In the capacity of sewer to properly carry off all the diluted sewage which the sanitary district must dispose of in the future, the South Branch and West Fork of Chicago River and the district drainage canal will need the use of the full cross section now being given to them at their typical points of constriction, viz, 4,700 square feet in South Branch, Chicago River, where a future 8,000 cubic feet per second is now asked for; 5,220 square feet in West Fork, South Branch, Chicago River, 5,412 square feet in the earth sections and 3,542 square feet in the rock sections of the drainage canal, for all of which 10,000 cubic feet per second is now asked for; and 5,412 square feet in the lower (south) end of the drainage canal, where 14,000 cubic feet per second is now being asked for. I assume that after this volume of water reaches the Des Plaines and Illinois rivers it can be taken care of more easily than in the Chicago River and that the 2,800 square feet cross section of the proposed 14-foot waterway, now under consideration by Congress, will be supplemented sufficiently by the rest of the natural river on each side of the improved boat channel. The above cross-sections, so long as no boats lie at wharves or pass up and down the river, will allow the passage of the 8,000 cubic feet per second through the South Branch, with average velocities of not exceeding about 1.2 miles per hour (1.7 linear feet per second); 10,000 cubic feet through the West Fork, with average velocities of not exceeding

about 1.3 miles per hour (1.9 linear feet per second), and the same flow through the earth sections of canal at not exceeding 1.2 miles per hour (1.8 linear feet per second), and through the rock section of canal at not exceeding 1.9 miles per hour (2.8 linear feet per second); and 14,000 cubic feet through the lower end of canal at not exceeding 1.8 miles per hour (2.6 linear feet per second).

Wherever the full free cross section of the river is obstructed by bridge abutments or by boats, either at docks or passing, the average 8,000 to 10,000 cubic feet per second water flow must pass through the reduced cross section at increased speed. The full development of this increase, while not instantaneous, will require only a few moments. In this manner, at bridges, the velocities will be increased for a short length by about 30 per cent; at places where two boats of 40 to 50 feet beam and 800 square feet wetted cross section are abreast the increase of velocity will be about 50 per cent; at places where three such boats are abreast the increase will be about 100 per cent, and in case four such boats should be abreast (one tied up at the wharf on each side of the stream and two others trying to pass in mid-river), the increase will be about 200 per cent. The drainage currents in the South Fork, South Branch, due to the 2,000 cubic feet per second coming from the Thirty-ninth street pumping station, and in the North Branch, due to a similar pumpage probably soon to be established at some street near Evanston, in the north end of Chicago, will be only about one-half of those in the South Branch, and their effects will probably be so small as not to be complained of by navigation interests. The drainage currents in the canal proper between the West Fork and Lockport will be about the same as in the South Branch; but as this part of the canal was not originally a public water way and has not yet been accepted as such by the Federal Government, it is doubtful whether the United States can object to any currents which its owners may establish or desire to establish therein. It is therefore evident that so long as the Chicago River serves merely as a sewer and is not to be used by boats the drainage district currents will not be objectionable, but as soon as it is also used as a harbor or as a canal or water route the currents begin to be seriously questionable.

18. I can see no use of Chicago River as a harbor or place for wharf frontage unless boats can stop and tie up somewhere nor unless they can pass each other to get to their place of wharfage, and on a stream like Chicago River the wharf owners on each side of the stream must be entitled to equal privileges. This means that there should be room for one boat to tie up on each side of the river and room for at least a third boat to pass.

19. The Chicago boat owners claim that the Chicago commerce has been seriously crippled because the tunnels prevented passage of boats drawing over 16 feet; that boats less than 45 feet beam are going out of existence on the Great Lakes, and that Chicago Harbor must provide future facilities for boats of 45, 50, and even 60 feet beam. I therefore assume in the following discussion that the advantageous use of Chicago River by boats must require preparation for boats of from 40 to 50 feet beam and 800 square feet of wetted cross section when loaded. A mere dock or boat slip of 3 or 4 boats' length (say 2,000 feet) should, for advantageous use by 50-foot-beam boats, have a clear width of 175 feet if straight, and 200 feet if at all curved, to allow of a boat tied up on each side and of one boat at a time entering or leaving

the slip, allowing a few feet between them for free motion; but if the boat slip be more than 2,000 or 3,000 feet length it should, for safety of navigation and economy of time, be 50 feet wider, so as to allow of four full-sized boats abreast, two at wharves and two passing in mid-stream.

20. As Chicago River, South Branch, including its west fork up to the drainage canal entrance, is about 5.57 miles long and only 200 feet wide, and not straight; it is at present not wide enough for use as a boat slip or harbor for 40 to 50 feet length boats, except in alternate sections of half-mile lengths, and it can not advantageously be used even in that way for harborage purposes except by boats of less than 40-foot beam. Even then, as soon as one boat ties up at a wharf and a second boat tries to pass it, the current velocity in the South Branch, with 8,000 cubic feet per second drainage flow, is liable to increase (for the reasons given in paragraph 17) to 1.8 miles per hour (2.6 linear feet per second), and when three boats are abreast the current is liable to increase to 2.4 miles per hour (3.5 linear feet per second). With four boats abreast the current is liable to reach 3.6 miles per hour (5.3 linear feet per second).

21. These currents, due to the use of Chicago River for combined sewerage and harbor purposes, will vary with the volume of passing water about as follows:

Volume of water flow.	Current in South Branch, Chicago River (having 4,700 square feet wetted cross section), which may be expected with boats of 800 square feet wetted cross section.			
	Open river.	2 boats abreast.	3 boats abreast.	4 boats abreast.
<i>Cu. ft. per sec.</i>	<i>Ft. per sec.</i>	<i>Ft. per sec.</i>	<i>Ft. per sec.</i>	<i>Ft. per sec.</i>
4,167	0.9	1.3	1.8	2.8
6,000	1.3	1.9	2.6	4.0
8,000	1.7	2.6	3.5	5.3
10,000	2.1	3.2	4.3	6.7
12,000	2.6	3.9	5.2	8.0
14,000	3.0	4.5	6.1	9.3

22. The corresponding currents in the South Fork and in the earth section of the main drainage canal will be a trifle less, so as to give about the same currents for three boats abreast as will the South Branch for two boats abreast. The currents in the rock section of the drainage canal will be greater for two boats abreast than they will be for three boats abreast in the South Branch. These currents are those due merely to the passage of the volume of water to be used at all hours of the day by the sanitary district, and are such as must be expected even though all the boats may be themselves tied up at the wharves or otherwise motionless. The obstructing boats will materially back up the water somewhat on their upstream sides, and between the suck due to the passing water and the pressure due to the temporary difference of head above and below the boats the anchored or tied-up boats will surge and tend to tear themselves from their moorings. Obviously, with such currents and a waterway only 200 feet wide, two boats abreast in Chicago River, South Branch, may cause trouble, three boats abreast will be the limit of practicability, and four boats abreast will become dangerous. Conditions will be a

trifle better in the West Fork and earth sections of the drainage canal, and much worse in the rock section of the drainage canal.

23. Interference with the use of Chicago River for mere harborage purposes must therefore be expected when the drainage canal flow through the South Branch reaches 8,000 cubic feet per second and that through the West Fork reaches about 10,000 cubic feet per second. The only remedies then possible will be (*a*) to stop further diversion (as can now be done under the provisions of the existing permit which limit the diversion to the indefinite time and volume when "such flow may become unreasonably obstructive to navigation or injurious to property"), (*b*) to further widen or deepen the river (the widening being impracticable by reason of high cost of river bank property and the deepening being questionable because of danger to foundations of adjoining buildings), and (*c*) to move Chicago harborage out of the river into the lake (where it properly belongs and where further expansion will be much less costly to the Federal Government and quite practical within reasonable limits).

24. From what has been said in the preceding paragraph it also should be obvious that Chicago River can not be advantageously used as a canal or a through waterway for boats of over 40 feet beam without either abandoning the use of the river for wharfage purposes or for drainage purposes, or both. Engineering authorities, as a rule, agree that a canal for through boat travel should have a cross section six times as great as the cross section of the boats for which it is built, in order to allow of free travel and passage of one boat each way all the time, and that wherever boats must tie up the cross section must be increased by the addition of special wharf fronts or harbors on the side of the regular channel. A lesser cross section adds greatly to the deterioration of banks or revetments, diminishes greatly the speed of travel of boats, and makes the proper handling of boats quite difficult. Chicago River, South Branch, and the West Fork are only four times as wide as the boats which Chicago wishes to use in it and have only the total cross section needed for a canal to properly serve such boats even if its water were that of a quiet pool without any current at all. Any use of the river as a harbor or any use of it as a sewer interferes with its proper use as a canal or through water route.

The currents to be expected by passing boats are already given above, except as affected by bridges. I do not consider that on the Chicago River, South Branch and West Fork, the bridge interference need be considered, because under the plans of the Chicago drainage district all these bridges are given a clear span of 140 feet, and under the city ordinances boats are forbidden to tie up at or close to a bridge, and because boats will rarely attempt to pass each other in a bridge draw, so that the currents due to a bridge obstruction will not be materially different from those due to two boats passing each other in open river or to two boats tied up at the wharves, one on each side of the river. So omitting bridge obstruction, the currents met by moving boats, so far as due to the drainage canal water flow, will be practically as above given for boats at rest. In considering the question of boat handling, and the speed and safety of the same, there must be borne in mind always the boat's own velocity when in motion, which of course should be added to the current velocity, in order to determine the relative velocities of the boats and the river, also the difficulty of

quickly displacing the river water to make room for the boat's own bulk; also the head of water temporarily banked up by the boat in its front during its travel through the river.

Boatmen in Chicago River do not seem to be agreed as to the water velocities, which they regard as unreasonably obstructive to their boats, but state such velocities usually at somewhere between 2 and 5 miles per hour (about 3 and 7 feet per second); but all velocities above 2 miles per hour (3 feet per second) due to water flow through Chicago River appear to be questionable and usually objectionable. If the river is to be continued in use as a through waterway and also as a harbor, both for heavy-draft boats, all use for drainage purposes is very objectionable above a flow of 6,000 cubic feet per second and will probably become "unreasonably obstructive to navigation and injurious to property" at about 6,000 cubic feet per second in the North Branch and at about 8,000 cubic feet per second in the West Fork. If the harborage use of the river be abandoned, the limit of unreasonable obstruction to future navigation will probably arrive at about 8,000 cubic feet per second in the South Branch and about 10,000 cubic feet per second in the West Fork, and also in the lower end of the drainage canal below the point of receipt of the Calumet River sewerage arriving via the Sag and feeder canal.

25. Summing up the above it may be briefly stated, therefore, that 10,000 cubic feet per second diversion of water from Lake Michigan into the drainage canal will be, probably, not unreasonably obstructive to navigation and injurious to property if divided up into 6,000 cubic feet per second through the main river and south branch, increased by 2,000 cubic feet per second more through the Thirty-ninth street sewer and 2,000 cubic feet per second more through Calumet River (10,000 cubic feet per second in all), but that an increase in these amounts to 8,000, 2,000, and 4,000 cubic feet, respectively (14,000 cubic feet per second in all), will probably prove to be unreasonably obstructive and injurious. Also that the 10,000 cubic feet per second will eventually and permanently lower the levels of Lakes Michigan and Huron by about 0.5 foot and Lake Erie by about 0.4 foot, and 14,000 cubic foot per second will make these depths 0.7 and 0.6 foot, respectively, which will be quite costly in future results.

Very respectfully,

W. H. BIXBY,

Lieut. Col., Corps of Engineers.

Brig. Gen. A. MACKENZIE,

Chief of Engineers, U. S. Army,

Washington, D. C.

CHICAGO, May 12, 1906.

DEAR SIR: Yours of April 18 last, addressed to the president of the sanitary district of Chicago, was by him referred to me for reply. Taking up your interrogations seriatim, I submit the following:

"A. How much will the withdrawal of water probably lower the level of Lake Michigan, giving inches of lowering and time in which to take full effect?"

This inquiry is one which I frankly confess my inability to answer. The data necessary to the answering of this question are not in hand,

and a Board of Engineers, of which you are an honored member, makes this statement:

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The effect upon the level of Lake Michigan of withdrawing 10,000 cubic feet per second for an indefinite period has been the subject of an elaborate investigation under the office of the lake survey in Detroit, and the conclusion reached is that the final effect will be to lower the level about 6 inches. (See Annual Report of Chief of Engineers for 1900, p. 5401, and for 1902, pp. 2779, 2825; also for 1904, p. 4120.) Oscillations of more than 6 inches in the level of the lake's surface are very common, often occurring hourly for many hours in succession, while oscillations of 2 or 3 feet within an hour are not uncommon. Still greater oscillations within a year or series of years occur, all from natural causes. Moreover, during a severe winter the discharge of St. Clair River is reduced by ice to less than one-third its normal discharge, the remaining two-thirds being stored up in Lakes Huron and Michigan and raising their levels; and the difference between the total discharge during a severe winter and the discharge during a mild winter will probably equal, or nearly equal, the discharge of the Chicago Drainage Canal for a year. A permanent average lowering of 6 inches in the lake's level, therefore, is not easily observed and will probably not be noticed by navigators. Nevertheless, the effect is real and important. Evidently there is a limit to the amount of water which can be taken from the southern end of Lake Michigan without compensating works at the outlet of Lake Huron.

The Board does not condemn the present plan of taking 10,000 cubic feet per second, believing as it does that some such amount will be needed to protect the lives and health of the people of a great city and of a populous valley; but it invites attention to the fact that if a much larger amount be taken it will be necessary to construct remedial works elsewhere, and that these are, or should be, of an international character. It is led to make this remark by the attitude of the Illinois legislature and of the other principal advocates of this enterprise, which is that the 14-foot waterway is only a beginning, and that a much deeper channel ultimately should be constructed, which means that a much larger volume of water must be taken from Lake Michigan. It is the opinion of the Board that the sanitary reasons for the abstraction of water so far exceed and overshadow the commercial reasons that the amount should be strictly limited by the sanitary necessities of the case. It is impossible to fix a limit to the future growth of Chicago. In a future not remote larger amounts of water may be needed for sanitary purposes, and channels deeper than 14 feet will then become practicable in the open alluvial portion of the Illinois River.

Bulletin No. 15, Survey of Northern and Northwestern Lakes, United States Engineer Corps, dated April 15, 1905, gives physical data for each of the Great Lakes from which I have collected the following facts:

The aggregate area of the basins of Lakes Michigan and Huron is 143,400 square miles, the aggregate rainfall on which is 343,064 cubic feet per second, and the outflow 131,400 cubic feet per second (206,400—75,000=131,400); the evaporation and land absorption would therefore be 211,664 cubic feet per second. Working on the basis of these figures we find that 1 foot in depth, or 45,500 square miles, the aggregate area of the two lakes, would equal 1,268,467,200,000 cubic feet and that it would take two years and 318.64 days to discharge that volume of water at the rate of 14,000 cubic feet per second. The time that it will take for the lakes to reach an approximately fixed regimen when subjected to the withdrawal of the volume of water asked for by us can only be determined by such a long series of observations as is suggested by your honorable Board.

An opportunity to compare the mean monthly elevations of Lake Michigan for five years prior to the opening of the canal with the five years thereafter may be of interest and is therefore given below. The data for this comparison is taken from a table issued by the United States lake survey office, Detroit, Mich., sent us by Col. G. J. Lydecker, under date of March 21, 1906. The showing indicates a higher stage

of water in the lake for the five years since the withdrawal of water through the sanitary canal than that which obtained during the five years previous to 1900, which simply indicates that the rainfall during that period has exceeded the total outflow and evaporation from the lake basins, the impounded excess serving to raise the lake level.

From the indications afforded by these tables and charts it would seem that any conjecture advanced to the effect that 10,000 cubic feet per second withdrawn from the southern end of Lake Michigan would lower that lake and Lake Huron 6 inches is not based upon observations made by the United States Engineers, but is purely academic.

“B. What will be the resulting currents in the Chicago River (*a*) for 8,000 cubic feet per second between the lake and junction of river with the Thirty-ninth street sewage water flow?”

This is figured for a datum stage of the lake as $1\frac{1}{4}$ miles per hour when the channel is widened throughout the stretch in question to 200 feet, deepened to 16 feet at dock lines, and 26 feet 50 feet out from dock—that is, given a cross-section of 4,700 square feet. There will be an acceleration of current through bridge openings due to channel constructions. (*b*) “That (velocity) for the 10,000 cubic feet per second between the point where the Thirty-ninth street water flow joins with the river and the point where the Calumet inflow connects with the river or drainage canal?”

This flow enters the West Fork of the South Branch through the Windage basin, recently created by the United States Government, at Ashland avenue and the forks of the river, and flows west through the said West Fork into the drainage canal at Robey street. This division of the West Fork has a width of 220 feet and a cross section when fully improved of 5,220 square feet.

The sanitary and ship canal between Robey street and Summit, 7.8 miles, has not been excavated to full width, but it is to be given a cross section which will reduce the velocity of flow to $1\frac{1}{4}$ miles per hour with 10,000 cubic feet per second passing. Between Summit and Willow Springs the channel has a cross section of 5,412 square feet. When the minimum depth of 22 feet prevails the resulting velocity would be about $1\frac{1}{4}$ miles per hour. At Willow Springs the rock channel is entered and its cross section, with a 22-foot depth, is 3,542 square feet, giving a velocity for a flow of 10,000 cubic feet per second of 1.92 miles per hour. This is for navigable uses a practically straight channel without an obstruction of any kind in it.

The theory upon which this channel was designed was that there would be a slope of 2.5 feet from the lake to Robey street and of 1.7 feet from there to Willow Springs and of 3.92 feet from Willow Springs to Lockport, making a total slope of 8.12 feet. Observations and determinations made since the opening of the channel show a much less slope than was anticipated, and hence a greater capacity. These observations lead us to conclude that the rock channel has a capacity of 840,000 cubic feet per minute at a velocity of about 2.6 miles per hour.

“C. That (velocity) for the 14,000 cubic feet per second through the drainage canal or other water way below where the Calumet River inflow is received, assuming cross sections above Lockport equal to that of the drainage canal and below Lockport to be that of the newly proposed ship canal (200 feet width, 14 feet depth)?”

This question may be answered as to the regular section of the drainage canal, but without a detailed study involving much time can not be answered south of the controlling works, because the drainage canal debouches into a basin of irregular width, giving a very greatly increased cross section as far as the new power plant. The channel south of the power plant will not conform to the hypothesis of 200 feet width by 14 feet depth because it will pass through slack-water pools, and when it reaches the Illinois River it will have a much greater cross section than that due to 200 by 14 feet, for the report of the Commission shows that even after the removal of the dams in the Illinois River there would be a 7-foot water way with a flow of 4,200 cubic feet per second (see report, p. 18, last paragraph); it is therefore apparent that in such a stream whose natural width is largely in excess of 200 feet, the result of excavating within its banks 7 feet or more to give a depth of 14 feet, would leave a channel the cross section of which would greatly exceed 2,800 square feet; hence a computation based upon that area would be misleading and useless.

In the subdivisions of question "C" it is hard to determine the leading question of velocity, particularly as in 2 and 3 no dimensions of boats are given. However, if there were boats at dock on each side of a 200-foot channel I can not conceive of such rashness as an attempted passage between them of two boats moving in opposite directions unless the attempt is made by very small craft.

Yours, very truly,

ISHAM RANDOLPH,
Chief Engineer.

W. H. BIXBY,
*Colonel, Corps of Engineers, U. S. A.,
Federal Building, City.*

LAKE MICHIGAN AT MILWAUKEE, WIS.

Average monthly, annual, and periodic stages for certain characteristic periods from 1819 to 1905.

[Referred to mean tide at New York, lake-survey level adjustment 1903. Data 1860-1905 furnished by United States lake survey office under date of March 21, 1906, by G. J. Lydecker, colonel, Corps of Engineers, U. S. Army. Data, 1819, 1838, 1847, from report of United States Deep-Water Commission, 1896.]

[Sanitary district of Chicago, May 11, 1906.—Compiled by E. L. Cooley.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1895.....	579.91	579.80	579.77	579.97	580.13	580.18	580.07
1896.....	579.06	579.10	579.11	579.29	579.57	579.89	579.83
1897.....	579.33	579.41	579.72	579.89	580.38	580.65	580.84
1898.....	579.72	579.86	580.18	580.50	580.78	580.91	580.86
1899.....	579.53	579.61	579.81	580.08	580.52	580.83	581.04
Monthly average.....	579.51	579.56	579.72	579.95	580.28	580.49	580.53

Year.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual average.
1895.....	579.95	579.68	579.31	579.09	578.98	579.74
1896.....	579.76	579.66	579.61	579.39	579.31	579.47
1897.....	580.78	580.53	580.24	579.98	579.76	580.13
1898.....	580.69	580.34	580.33	579.92	579.58	580.31
1899.....	580.96	580.82	580.49	580.31	579.81	580.32
Monthly average.....	580.43	580.21	580.00	579.74	579.43	579.99

Average monthly, annual, and periodic stages for certain characteristic periods from 1819 to 1905—Continued.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1900.....	579.66	579.77	579.94	580.07	580.31	580.42	580.53
1901.....	579.95	579.92	580.34	580.49	580.92	580.97	581.06
1902.....	579.76	579.61	579.84	579.91	580.30	580.50	580.83
1903.....	579.69	579.85	580.06	580.33	580.43	580.61	580.79
1904.....	579.87	579.86	580.15	580.61	580.98	581.36	581.36
Monthly average.....	579.79	579.80	580.07	580.28	580.59	580.77	580.91

Year.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual average.
1900.....	580.70	580.65	580.66	580.52	580.19	580.28
1901.....	581.11	580.92	580.56	580.23	579.95	580.53
1902.....	580.85	580.48	580.33	580.20	579.91	580.21
1903.....	580.72	580.77	580.50	580.14	579.82	580.31
1904.....	581.28	581.21	581.08	580.78	580.44	580.75
Monthly average.....	580.93	580.81	580.63	580.37	580.06	580.42

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1819.....		578.02					
1838.....							
1847.....	579.31	579.19	579.41	579.50	579.71	580.12	580.18
1876.....	581.39	581.59	581.92	582.12	582.74	583.15	583.49
1886.....	582.67	582.69	582.97	583.24	583.50	583.57	583.38
1860-1905.....	580.85	580.88	581.05	581.25	581.54	581.78	581.86

Year.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual average.
1819.....						
1838.....						
1847.....	580.13	580.24	579.92	579.81	579.60	579.76
1876.....	583.42	583.37	582.79	582.89	582.42	582.61
1886.....	583.15	582.91	582.81	582.47	582.14	582.96
1860-1905.....	581.80	581.61	581.39	581.13	580.89	581.34

APPENDIX I.

[PUBLIC—No. 367.]

An Act For the control and regulation of the waters of Niagara River, for the preservation of Niagara Falls, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That the diversion of water from Niagara River or its tributaries, in the State of New York, is hereby prohibited, except with the consent of the Secretary of War as hereinafter authorized in section two of this Act: *Provided*, That this prohibition shall not be interpreted as forbidding the diversion of the waters of the Great Lakes or of Niagara River for sanitary or domestic purposes, or for navigation, the amount of which may be fixed from time to time by the Congress of the United States or by the Secretary of War of the United States under its direction.

SEC. 2. That the Secretary of War is hereby authorized to grant permits for the diversion of water in the United States from said Niagara River or its tributaries for the creation of power to individuals, companies, or corporations which are now actually producing power from the waters of said river, or its tributaries, in the State of New York, or from the Erie Canal: also permits for the transmission of power from the Dominion of Canada into the United States, to companies legally authorized therefor, both for diversion and transmission, as hereinafter stated, but permits for diversion shall be issued only to the individuals, companies, or corporations as aforesaid, and only to the amount now actually in use or contracted to be used in factories the buildings for which are now in process of construction, not exceeding to any one individual, company or corporation as aforesaid a maximum amount of eight thousand six hundred cubic feet per second, and not exceeding to all individuals, companies or corporations as aforesaid an aggregate amount of fifteen thousand six hundred cubic feet per second: but no revocable permits shall be issued by the said Secretary under the provisions hereafter set forth for the diversion of additional amounts of water from the said river or its tributaries until the approximate amount for which permits may be issued as above, to wit, fifteen thousand, six hundred cubic feet per second, shall for a period of not less than six months have been diverted from the waters of said river or its tributaries, in the State of New York: *Provided*, That the said Secretary, subject to the provisions of section five of this Act, under the limitations relating to time above set forth is hereby authorized to grant revocable permits, from time to time, to such individuals, companies, or corporations, or their assigns, for the diversion of additional amounts of water from the said river or its tributaries to such amount, if any, as, in connection with the amount diverted on the Canadian side, shall not injure or interfere with the navigable capacity of said river, or its integrity and proper volume as a boundary stream, or the scenic grandeur of Niagara Falls: and that the quantity of electrical power which may by permits be allowed to be transmitted from the Dominion of Canada into the United States, shall be one hundred and sixty thousand horsepower: *Provided further*, That the said Secretary, subject

to the provisions of section five of this Act, may issue revocable permits for the transmission of additional electrical power so generated in Canada, but in no event shall the amount included in such permits, together with the said one hundred and sixty thousand horsepower and the amount generated and used in Canada, exceed three hundred and fifty thousand horsepower: *Provided always*, That the provisions herein permitting diversions and fixing the aggregate horsepower herein permitted to be transmitted into the United States, as aforesaid, are intended as a limitation on the authority of the Secretary of War, and shall in no wise be construed as a direction to said Secretary to issue permits, and the Secretary of War shall make regulations preventing or limiting the diversion of water and the admission of electrical power as herein stated; and the permits for the transmission of electrical power issued by the Secretary of War may specify the persons, companies, or corporations by whom the same shall be transmitted, and the persons, companies, or corporations to whom the same shall be delivered.

SEC. 3. That any person, company, or corporation diverting water from the said Niagara River or its tributaries, or transmitting electrical power into the United States from Canada, except as herein stated, or violating any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding two thousand five hundred dollars nor less than five hundred dollars, or by imprisonment (in the case of a natural person) not exceeding one year, or by both such punishments, in the discretion of the court. And, further, the removal of any structures or parts of structures erected in violation of this Act, or any construction incidental to or used for such diversion of water or transmission of power as is herein prohibited, as well as any diversion of water or transmission of power in violation hereof, may be enforced or enjoined at the suit of the United States by any circuit court having jurisdiction in any district in which the same may be located, and proper proceedings to this end may be instituted under the direction of the Attorney-General of the United States.

SEC. 4. That the President of the United States is respectfully requested to open negotiations with the Government of Great Britain for the purpose of effectually providing, by suitable treaty with said Government, for such regulation and control of the waters of Niagara River and its tributaries as will preserve the scenic grandeur of Niagara Falls and of the rapids in said river.

SEC. 5. That the provisions of this Act shall remain in force for three years from and after date of its passage, at the expiration of which time all permits granted hereunder by the Secretary of War shall terminate unless sooner revoked, and the Secretary of War is hereby authorized to revoke any or all permits granted by him by authority of this Act, and nothing herein contained shall be held to confirm, establish, or confer any rights heretofore claimed or exercised in the diversion of water or the transmission of power.

SEC. 6. That for accomplishing the purposes detailed in this Act the sum of fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated from any moneys in the Treasury not otherwise appropriated.

SEC. 7. That the right to alter, amend, or repeal this Act is hereby expressly reserved.

Approved, June 29, 1906.

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